"OFFICIAL JOURNAL OF THE UNITED STATES ATV SOCIETY"

AMATEUR TELEVISION MAGAZINE™

OCTOBER 1984 VOL. 14 NO. 10 PUBLISHED MONTHLY "OUR 18TH YEAR" $2.00

WD4FAB 900 & 1200 MHZ. BANDPLAN CONTROVERSY HEATS UP!

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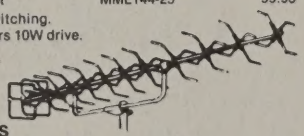

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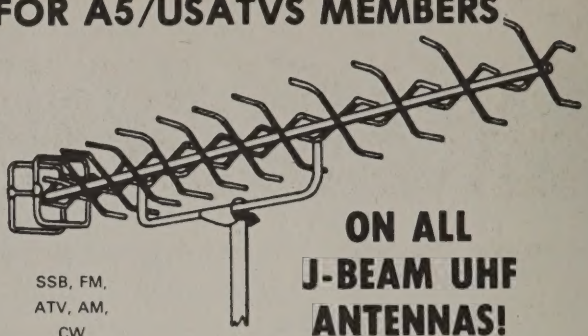

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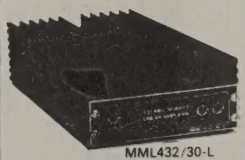

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MML144/100-LS	1 or 3W	100W
MML144/200-S	3, 10 or 25W	200W
MML432/30-L	1 or 3W	30W
MML432/50	10W	50W
MML432/100	10W	100W

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"OUR 18TH YEAR!"
OCTOBER 1984 Vol. 14 #10

"TAKE ONE!"
A5 EDITORIAL COMMENTS -WB0QCD

Our September "anniversary" issue had a front cover photo of a very unique WB0ZJP video ID callsign QSL Card. St. Louis FSTV'er Dave Williams claims that he used written letters and spent some time folding and twisting the callsign just right until it appeared in readable form within the oscope video signal display. I must admit, I have seen almost recognizeable pictures of people moving around with a video scope signal display at times, so I guess it's possible. I reserve small doubt however, as Dave is quite an accomplished photographer and certainly knows the tricks of the trade. How about it gang? Design your own oscope images and let's see if anyone can duplicate WB0ZJP's marvelous task!

Our September issue also unveiled plans for PHASE II of the USATVS administrative organizational plan. The need for such ATV representation was never more clear than at the Central States VHF Society Conference in July. If it hadn't of been for the persistance and dedication of Tom O'hara W60RG and a handfull of other ATV'ers and our efforts here at "A5" in attending the meeting and negotiating the 900 and 1200-1300 Mhz. bandplan proposals directly with WD4FAB, FSTV operations above 70 CM. would have been dealt a tremendous blow-certainly not in our favor. We need regular territorial input from individuals and groups of ATV'ers across the USA. The USATVS needs a true "voice" to speak on behalf of all ATV'ers, not just a few. The 66 Section Manager administrative plan (similar to the ARRL's) looks to be a sound directive. We are already receiving nominations and names of volunteers to fill these positions. We still have a number of USATVS Section Manager positions yet unfilled. Now is the time to devote a few hours each quarter and participate in the USATVS program. If you think you might be interested, send an SASE to us for information brochures and the SEC MGRS. Duties Sheet. Please, let's hear from you and get the program underway by January 1985.

At this printing, we are attending our annual fall A5/USATVS National ATV Conference in Schaumburg, Illinois (Chicago) in conjunction with RADIO EXPO 84. We will be reporting the outcome of this meeting. For those of you who could not attend this year, and as with past A5 Conferences, they will be made available within the USATVS Videotape Library. We include a special updated listing of videotaped programs within this issue. 73's -WB0QCD

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Channel 1

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COMMENTARY

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All correspondence addressd to this column, must be signed with full address information. Requested "Unsigned" comments must be made in writing to the Publisher with all letters received being held on file for public inspection for a period of one year. We try to answer all mail on a first come, first serve basis. -WBOQCD Editor/Publisher

SSTV is still changing...

Dear Mike, Thanks for your card and the invite to the Fall ATV Conference. I will not avail myself of the opportunity, partly because I will be in Europe for a month and partly because I have to stay close to the Fred R. Sharp Co., Inc. for awhile. I am a manufacturers rep and have neglected the business to the point that I am forced to curtail some of my outside activities. Thanks anyway. The fact that Microcraft sold out doesn't come as too much of a shock. Robot put a lot of people out of business with their new composite color standards. I really do not think, however, that Robot has the market to themselves. Far from it. The Japanese will take advantage of the move and probably come out with the same equipment at a lower price, or even at the same or higher price and sell-the-hell out of it. We all know Yaesu, Kenwood, etc. and the quality that is built into their equipment, as evidenced by sales. How many people do you know who use Drake, compared to Kenwood and Yaesu!! The software writers like Ben Blish won't be outdone either. I understand that Ben has completed a program for the Co-Co and/or other computers that does it all, and I mean DOES IT ALL! Hi-Res, all speeds (including all the Robotcolor speeds) excellent FAX, CW, Excellent RTTY. As they say: "The whole NINE yards!" These are my thoughts on the SSTV situation. I could coin a phrase and say "While Robot sets the Pace, Japan wins the Race!!" You can quote me. (I think it's pretty good!) Best regards, Fred R. Sharp W8ASF

Thanks Gary!

Dear Mike, I was not quite sure about renewing my subscription to A5 until I read Gary's 'N9GA' review on the Hamtronics REP-100 220 Mhz Repeater. As with many ATVer Home Brewers, my interests are many including FM Repeaters. It was good to read a"tell it as it is"article. My suspicions were correct after reading Gary's words. I have used many Hamtronics products with some good and some not so good results. I tried their 2 meter exciter for repeater use and had poor results with lots of desense. The Autopatch Board gave good results only after adding changes to increase OP Amp gain for line input and decrease gain for line output. Just be ready to mod when buying Hamtronics gear. Thank you for another very good article. Keep sending A5 and I will keep building local ATV interest. 73 Ron K1VYU

(See Channel 5 Don)

Dear Mike, It was nice to see you again at Dayton. As usual, I found it to be the "Cadillac" of Hamfests and hope you found it such also. I wanted to ask you about the new Mitsubishi P50U Printer, but forgot about it when I saw you. Then, today the May issue of A5 arrived and I was again reminded of the printer. I am very interested in it, and could be interested in obtaining one if they are at all available yet. Your article infers that there my be some around so I'd appreciate any information you have on obtaining one. Thank you in advance for your cooperation. Sincerely, Don KC9YX

Clay travels the world, doesn't he?

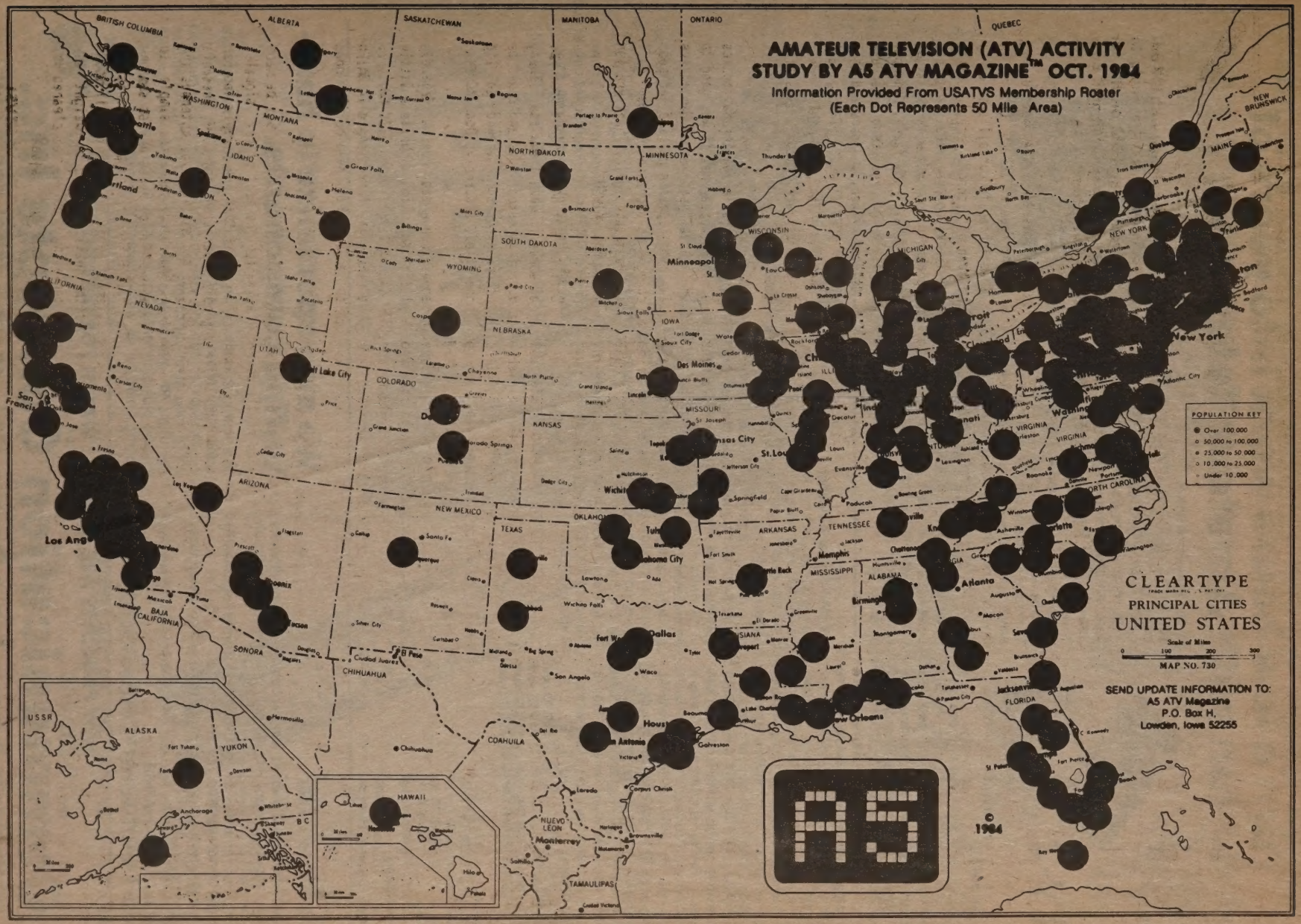
Dear Sir! I'm happy to renew my subscription to A5 magazine. Enclosed is a cheque (personal cheque made by a friend), for another great year of interesting activity in our hobby. I hope that soon I'll find some time to write a little article on what's going on here. I'm using TRS-80C with Clay Abrams' software for SSTV (and a little for RTTY/CW). By the way I had a visit from Clay and his XYL last month which my wife and me enjoyed very much. They stopped in HAIFA while cruising in the Mediterranean Sea. I saw some photographs of his latest work which looked great. Keep on the good work! Yours faithfully, M. Shoval 4Z4PR ISRAEL

FAX enthusiasts - help him out!

Dear Mr. Stone: I would appreciate very much any information about any amateur facsimile tapes which may be made available later on, maybe by the beginning of next year. My location really does not allow for the best of fax signals, nor does my "all-purpose" 8 trap dipole antenna as designed for the major SW bands, it could be that I am simply too far out from the more active fax regions. The adopted frequency of 14.245 Mhz, while a goodly separation from SSTV, presents some difficulty to my FRG-7 for settling on a real clear and consistent signal. Specialized amateur type antennas are expensive enough here, I must look into getting something which will improve conditions. Home-brew, there are simple to exotic designs, you can choose whatever best suits your need. I can get only 1/2" aluminum tubing here, unless someone can donate a used TV antenna for the project. Can we expect to hear more about the MITSUBISHI video printer as was featured in the May issue? The sample photos shown must have created a lot of excitement among the computer all-modes converter buffs. The copy size is less than that of some of the present printers, but the quality would outweight any tendency to favour economics versus superiority. I sure hope that all of the reported marketing problems get cleared up, and that the machine will be on the way to a huge and wide success. Your's truly, D'Arcy Brownrigg - Canada

GOT A BEEF ? MAKE A STATEMENT ? COMPLIMENT SOMEONE ? "DO IT" WITH A LETTER TO USATVS!

Channel 2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The new ATV-2 converter has two super sensitive RF Pre-amplifier stages using the low noise MRF-901 (1.7 dB NF) transistors. The ATV-2 tunes from 420-450 MHz and down converts to channels 2, 3, or 4 on your standard TV set. The circuit uses durable microstrip design for stability and simplicity. The combination of a dual RF stage, the microstrip design, and the hot-carrier diode double-balanced mixer reduces UHF TV intermod problems. The local oscillator is varactor controlled for ease of tuning. An additional feature not found on other ATV downconverters is the incorporation of a post amplifier stage (6 dB min gain) following the double-balanced mixer. This post amplifier stage is used to overcome the conversion loss of the mixer. The Post-amplifier also delivers a signal level that is acceptable to the TV set to overcome the TV set's sensitivity threshold. The addition of the Post-amplifier circuitry is most noticeable on every weak signal reception. Overall the Communication Concepts ATV-2 downconverter is just what you need to enjoy amateur television to the fullest extent.

ATV CONVERTER:

ATV-2-Wired and Tested..... $59.95 each
ATV-2-Pk Partial Kit..... $44.95 each
ATV-2-PCB Printed Circuit Bd only..... $10.00 each
ATV-2-I Instruction Manual Only..... $5.00 each

Specifications

RF Input.....420-450 MHz
RF Output.....Channels 2, 3, or 4
DC Input.....+12 Vdc at 50 ma
RF Stages.....2 (MRF-901)
LO.....Varactor Tuned
Fine Tuning Range.....
.....Approx. 30 MHz
Pre IF Stage Gain.6 dB Minimum

Audio Squelch Control

You have a squelch on your 2 meter equipment; why not add a squelch to your ATV monitor. Now you can avoid the major problem of operating ATV—the annoying hiss and static when the signal is not present. With the ATV squelch, you no longer have to turn the volume down when the signal disappears and risk the chance of missing a signal.

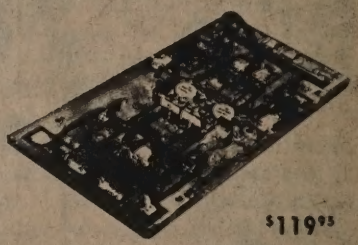
The squelch easily connects to the TV receiver audio stage without modification of the TV, since the squelch circuit contains its own audio output stage. You must provide your own speaker. Operator safety is provided by using transformer isolation between the receiver and the squelch circuit, thus eliminating the shock hazard when using a "hot chassis" type TV receiver.

$34.95

SIL-K Complete Kit—includes a detailed instruction manual, printed circuit board and all electrical components. Kit does not include case, speaker and regulated power supply (10 to 15 volts @ 250mA).
SIL-PCB Printed circuit board only **$10.00**

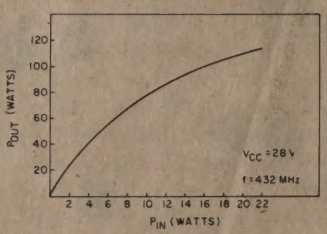
100 Watt Linear Amplifier

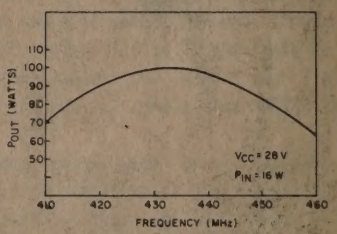
Now you can get on the air with a high power 100 watt class B linear amplifier for SSB-FM or ATV on the 420 to 450 MHz band and still not spend a lot. This kit is described in Motorola engineering bulletin EB-67 and is available in a number of configurations. For full output, a minimum of 16 watts is required for excitation with an input SWR of not higher than 2:1. Output will maintain stability with a 3:1 collector mismatch at all phase angles. A designed-in low-pass filter suppresses the 2nd harmonic to at least 63 dB down. An external power supply capable of providing 28 VDC, regulated, at 10 amps is also required.



$119.95

KEB-67-PK Kit includes detailed step-by-step instructions, printed circuit board, and all electronic components as shown.
KEB-67-PCB Printed circuit board only $14.00
KEB-67-I Instruction manual only $5.00





P.C. Boards

The FCC does not allow us to sell Broadband RF amplifier kits in the HF range, therefore we can only offer the printed circuit board and parts on a piece-by-piece basis.
140 watt power amplifier as described in Motorola engineering bulletin EB-63. **EB-63-PCB**
100-180 watt power amplifier as described in Motorola application note, AN-762. **AN-762 PCB**
300 watt power amplifier as described in Motorola engineering bulletin EB-27A. **EB-27A PCB**
Transformers, transistors and other parts are also available.

We also specialize in hard-to-find components.

In addition to our kits, we also stock parts for other Motorola application notes and engineering bulletins. We have an in-depth stock of Motorola VHF and UHF transistors, Underwood metal clad mica capacitors (Unelco), Kemet chip capacitors, Cambion RF chokes and Ferroxcube Ferrite beads and RF chokes plus other difficult to find parts. If you are having trouble finding a part, call us, we probably have it in stock.

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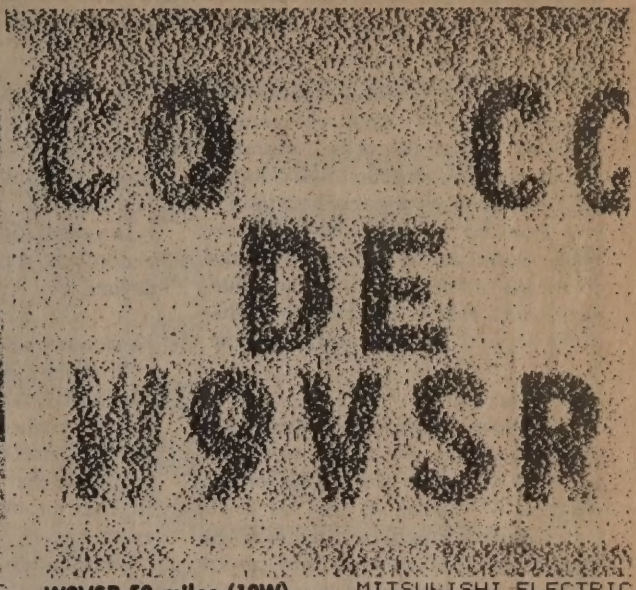
CHANNEL 4

RESULTS OF AUGUST NORTH AMERICAN FSTV UHF CONTEST POUR IN!

EXTENSION TO "WEEK LONG" TIME PERIOD FAVORED BY MOST

WB9MCF-110 miles (150W) MITSUBISHI ELECTRIC



W9VSR-50 miles (10W) MITSUBISHI ELECTRIC

These are a few of the pictures I captured on my MITSUBISHI P50U Video Printer. There are a handful of these unique printers available via Greg Mengell KA6DPV, 8965 Sunset, Fair Oaks, California 95628. Contact him directly.

N9AEP-40 miles (100W) MITSU... ELECTRIC

RESULTS COMING IN...

The big week is over! The results and logsheets are still coming into "A5" by contest participants for the annual 1984 NA UHF FSTV Contest held August 20-26th. The "extended" week long event seems to be favored by many. Activity looks down in some areas and up in others. I worked only 19 contacts of ATV in our area but had fun working 8 432 SSB-DX contacts including W8PN Duluth, MN. (500 miles), WB4NXY Kentucky (400) and W4GJO in Goergia (550-600 miles!). The band never "opened" that week for us. One "new" and three old stations got back on to renew old acquaintences-which is what it is all about! Rumor has it that W6ORG went airborne in a helicopter? Send logs, pictures and stories. Our November issue should have all the results tabulated. -WB8QCD

COLOR TV SIGNAL LINEAR CHROMINANCE DISTORTION

COMMERCIAL BROADCASTERS MONITOR PROBLEMS, AND SO SHOULD AMATEURS!

by Hans Schmid, New York, N.Y. TV Technology (August 1984)

. . . Linear chrominance distortion in a TV signal will manifest itself as inaccurate color saturation and/or color registration of all colors in a TV picture. Inaccurate color saturation will show up as either paler or more vivid colors than the original. Inaccurate color registration will show up as a "funnies" effect, that is the colors are either to the left or to the right of their outline.

Color inaccuracies

These color inaccuracies, as seen on a picture monitor, are related to corresponding waveform distortions of the electrical TV signal, as seen on a TV waveform monitor where they can be treated objectively (that is, they can be measured and expressed in numbers with reasonable accuracy). For this purpose the modulated 12.5T pulse (MOD 12.5T PULSE) has been accepted as the industry standard.

As shown in Figure 1 the MOD 12.5T PULSE consists of a luminance component and a chrominance component, both of equal amplitude and both occurring at the same time. Or more to the point, in the undistorted MOD 12.5T PULSE the relative chrominance level (RCL) with respect to the luminance level is zero percent, and the relative chrominance time (RCT) with respect to the luminance time is zero nanoseconds.

When the MOD 12.5T PULSE is distorted, it is due to the chroma being high or low, advanced or delayed, or a combination of both. The most frequently encountered distortion is due to low and delayed chroma as shown in Figure 2.

Rather than bore you with the theoretical analyses in the references listed at the article's end, we will use a common sense analysis that can get you into the "ball park" for reasonable and practical combinations of RCL and RCT.

Refer to Figure 2:

1. The top of the MOD 12.5T PULSE is ≈95 IRE, hence the p-p amplitude of the chroma is ≈90 IRE or 90%, thus RCT ≈ −10%. In general, RCL (in + or − %) is roughly two times the deviation of the pulse top from REF WHITE.

2. The bottom of the MOD 12.5T PULSE has a leading (left) lobe of ≈7 IRE and a lagging (right) lobe of ≈ −3 IRE, hence the p-p value is ≈10 IRE or 10%, which, when multiplied by a 10 ns/% constant, is ≈100 ns with the larger (fatter) area of chroma in the lagging (right) half of the pulse. Thus RCT ≈100 ns delayed.

In general, RCT (in ns delayed or advanced) is roughly 10 times the p-p deviation of the pulse bottom.

Keep numbers meaningful

In day-to-day broadcast operations, the distortions of the MOD 12.5T PULSE may be masked by noise, nonlinear distortions, etc. Therefore discretion must be used so that the numbers for RCL and RCT are meaningful, even if not critically exact.

This, and the fact that an RCT of less than 125 ns is smaller than a picture element (and therefore not visible on a picture monitor) justifies the common sense analysis for operational measurements of reasonable accuracy.

Of course, for lab measurements (e.g. of a single amplifier) we must be very critical. Figure 3 shows the transmission test signal developed by us to serve both as an operations tool and as a lab tool. Here, instead of the MOD 12.5T PULSE, we use the MOD 12.5T BAR which can be thought of as a stretched pulse, but with the top and bottom clearly displayed. Since the MOD 12.5T BAR (and for that matter, the 2T PULSE) overlays the REF WHITE amplitude of the LINE BAR, critical measurements of amplitude deviations can be made.

A detailed comparison between Figure 2 and 3 shows that everything said about the pulse is also true about the bar. And the common sense method is validated by the rigorous analysis of the IEEE Standard 511.

For more details you may wish to refer to: IEEE Standard 511 1979; "Television Video Transmission Measurements", L.E. Weaver, Marconi Instruments Limited; or H. Schmid, "The Measurement of Linear Chroma Distortions in NTSC TV Facilities," *IEEE Transaction on Broadcasting*, Sept 1972.

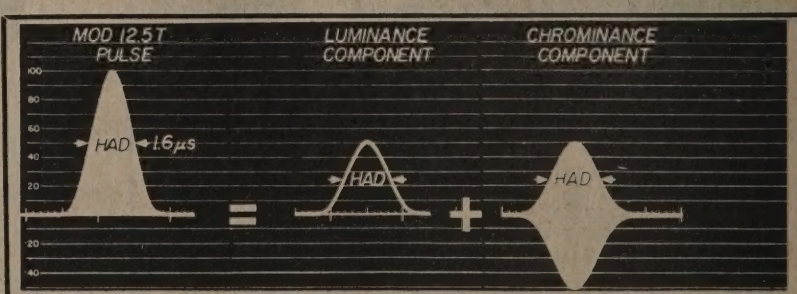


Figure 1. The MOD 12.5T PULSE and its 2 components as seen on a waveform monitor with appropriate filtering. Note that the upper envelope of the MOD 12.5T PULSE is the sum of the luminance component and the upper (positive) envelope of the chrominance component. And that the lower envelope of the MOD 12.5T PULSE is the difference between the luminance component and the lower (negative) envelope of the chrominance component.

Figure 2. Distorted MOD 12.5T PULSE RCL ≈ −10% and RCT ≈ 100 ns delayed.

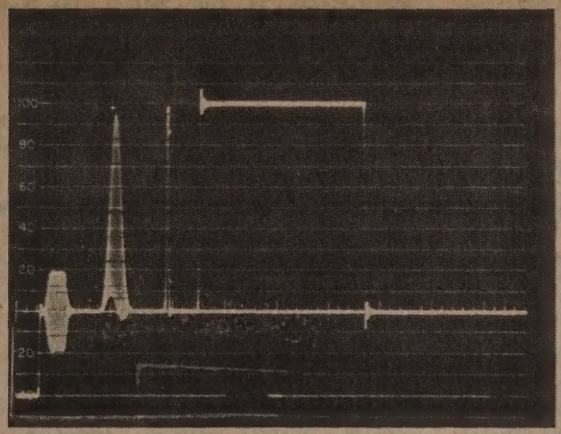
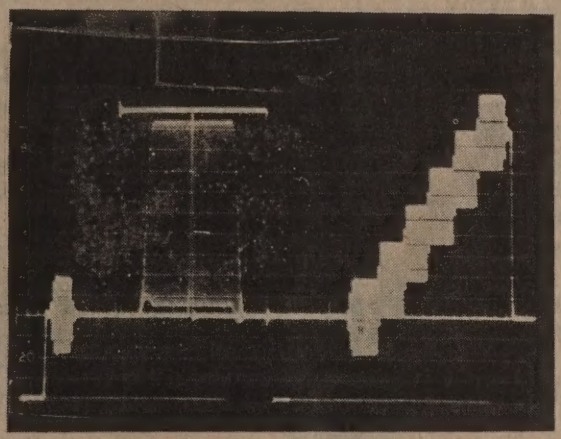
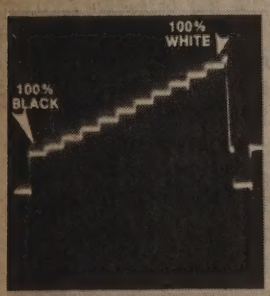
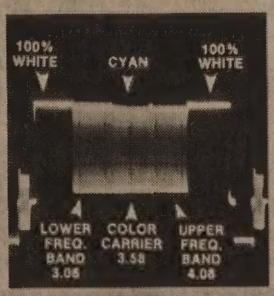
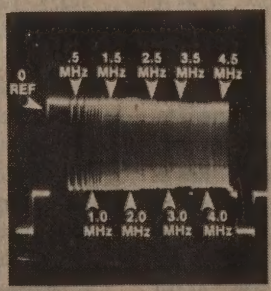


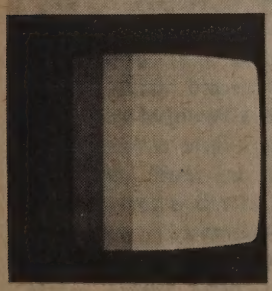
Figure 3. Distorted MOD 12.5T BAR RCL = −10% and RCT = 100 ns delayed.

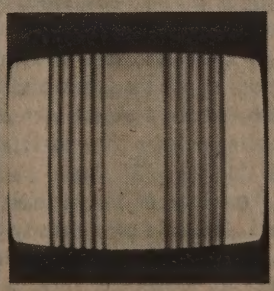


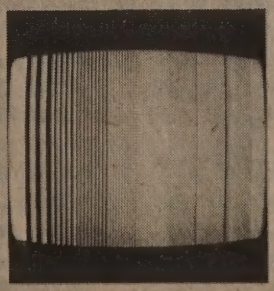












10 Bar Staircase *Improved Chroma Bar Sweep* *Improved Multiburst Bar Sweep*

IN SEARCH OF "ET"

A5 Guide to HIDDEN FSTV TRANSMITTER HUNT CONTESTS!

There is an old saying that hangs in many Amateur Radio shacks (usually provided by our XYL's) that reads; "The Only Difference Between Men And Boys Is The Price Of Their Toys". We all, at one time or another, enjoyed the childhood game "Hide & Seek". Add a few more years of experience, a great electronic shortwave communications hobby and a mode called "television video" and the combination is sure to make an afternoon of fun for all!

ET

Perhaps we can enhance the fantasy of this venture a bit, by relating it to the two biggest movie box office draws of the eighties; "ET" and "IN SEARCH OF SPOCK", combined together to form a new title of "IN SEARCH OF ET!". In this case, "ET" does not stand for "Extra Terrestrial". It stands for "Emitting Transmitter". Technically speaking, it could be "Video Emitting Transmitter" or "VET" but whoever heard of "IN SEARCH FOR A VET"? Maybe "Picture Emitting Transmitter" or "PET"? "IN SEARCH OF A PET" is certainly something which we all can better relate too. But for simplicity of this article , we shall refer to it as just "ET".

Practical purpose too!

As you can tell from the first two paragraphs, we are trying to set forth an emphasis of "fun" as that is what attracts most Amateurs to "ATV" in the first place. For those of you who will admit to being involved back in the CB days, you might remember hearing about or even participating in a radio game called "Bunny" or "Rabbit". The principles are the same with "ET" except that we now use an Amateur UHF-TV visual communications mode. *On a more serious note, these techniques can be used to locate Amateur frequency intruders or QRM interference. Southern California ATV'ers used this method quite successfully on several occasions locating ATV interferring radio navigation commercial signals on the West Coast which eventually brought the shutdown of transmitters emitting the wideband signals. It also provides "practice" for other ATV related events such as Rallys, Field Day or On-the-Scene Portable Emergency Communications.

On your mark, get set...

We recommend a group of Eight to Ten teams (ET) of FSTV "mobiles" and one Base Station to act as controller and information provider to all of the in-field ATV units. There can be as few as two to a team or as many as can fit comfortably in a Volkswagen Rabbit. All ATV field mobile units will meet at a chosen location (perhaps at or near the Base Station facility) to go over final rules and regulations of the contest. The team designated as "ET", heads out prior to the meeting and sets up the "Emitting Transmitter" station (within preset boundries) ready for operation as soon as the "field units" are in place and ready to go. "ET" must be located and completely accessible on public traveled grounds. It is recommeded to find a "high" location so to give a better radiating signal for all to track. An omni-directional antenna should also be used by "ET". "ET" shall be in constant communications with the Base Station and shall be directed to transmit for a period of 5 minutes every 15 minutes (on 5 off 10) until located or terminated. "ET" must be seen by the Base Station facilty during these periods. It is advised that all ATV Field Unit Team Members visit the Base Station facility (especially at the beginning of the event) to obtain initial signal direction bearings. Careful intelligent signal direction plotting narrows down the area where "ET" can be hiding. "ET" cannot "hide" in unseen places or be located inside buildings, etc. or move to another location once the hunt begins. (custom made rulings can be drawn up to fit various geographical areas of the country). The object for the "ET" station to keep in mind, is to make it somewhat difficult for the ATV field units to locate the "emitting transmitter", but not so difficult that it discourages the players in the contest. No doubt, quick finds, will mean more times the game can be played in an afternoon.

U.F.O.'s

"UHF Field Organized" ATV "mobiles" (UFO's) should carry on board; directional UHF-TV receiving antenna(s), sensative ATV Downconverter, a 12VDC TV Set, an auxillary coordinating Two Meter FM Communications system, plenty of paper and pencils for tracking data and Base Station relay information and of course, maps of the area being investigated. All ATV Mobiles shall report into the Base Station facility with actual location information once every half hour (low power levels may be used). It is important to keep in mind that some teams have been known to provide false "signal tracking" information to lead others off track! With good, careful cordinating team participation, proper signal directional finding equipment, "ET" is usuallly found within an hour or two. The winning ATV Field Unit Team can of course be awarded a prize. Depending upon the hidden difficulty factor, all players may continue to locate "ET" until all ATV Field Units rejoin the group. "Booby prizes" can be awarded to the last to arrive ATV Field Unit.

Beware...

Remember, "ET" is using the wind, an very old rickity umbrella, a saw blade, lots of aluminum foil, a bunch of string and a childs phonograph record player for a transmitter, so don't expect much of a TV signal until you start getting closer to position. There can be several variations to the ATV "game" and we would appreciate hearing from those of you who have done this sort of event in the past. We would particularly interested in specific rules and guidelines and signal direction hunting techniques. ATV Groups and Clubs set dates before winter sets in and give it a try and let us know your results! -A5

AN UPCONVERTING VESTIGAL SSB ATV XMTR

by Hap Griffin WA4UMU
Sumter, South Carolina

PART ONE

The purpose of this article is to present an alternative to the old method of video modulating the final stages of a UHF transmitter to send ATV pictures. Modulating a high-level stage is fine for voice or music (as in AM broadcasting), but has definite drawbacks when used for the more technically demanding video mode. The TV broadcast industry found a long time ago that it was technically more desirable to modulate a low-level intermediate frequency stage. Better linearity, more managable frequency response, and better differential gain and phase measurements are a result of generating the TV signal at a low frequency and power level. This modulated IF signal is then heterodyned up to the operating frequency and amplified.

The RCA TTUE-4A/TTU-30C (a typical 30 KW UHF TV transmitter) uses an IF frequency of 45.75 Mhz. This is modulated in a dual-gate mosfet circuit fed by video which has been fed through a video processing amplifier (Proc-Amp) to precorrect for any distortions that may occur in the transmitter chain. The modulated IF signal is then routed through an active filter, which shapes the spectral content into the familiar vestigal sideband response shown in figure 1. Several stages of IF amplification come next, and then the signal arrives at the up-converter, where it is heterodyned to the operating frequency. Further amplification in the driver stage brings the power level up to approximately 10 watts peak-of-sync. The signal is then fed into the input cavity of a klystron tube. The output power of the klystron is 30 KW peak (those input and output figures are not misprints; a klystron has a tremendous amount of gain!). The aural output of the exciter is approximately 0.5 watts and drives a similar klystron amplifier to 3 KW output.

For several years, Jim Walters KB4FF, and myself have been using a very similar system to the one described above with great success. We were able to obtain through Army MARS channels two Dynair TX-4A commercial quality TV modulators. These are rack-mounted, solid-state units designed to put a vestigal sideband TV signal on a particular UHF channel in a cable TV system. My unit is set up for channel 4. In addition to a beautiful color picture, these units generate superb subcarrier audio. They have four controls on the front panel: video modulation, video carrier, audio modulation, and audio carrier. Similar units should be available used from your local cable TV company. Also, if your state has a closed circuit educational TV system for the schools, you might check there. I have also seen several of these modulators at hamfests.

*WA4UMU
P.O. BOX 6104
Sumter, S.C. 29150-6104

The channel 4 output from my unit (approximately 100 mw. across 75 ohms) is fed into the IF input of a Hamtronics XV4 UHF transmitting up-converter. My particular unit is an XV4-6, which is designed to take low-level excitation from a 6-meter transmitter and heterodyne it to 432 Mhz out. The channel 4 video carrier frequency is 67.25 Mhz, so this is not too far out of it's range. Hamtronics now offers a version of this unit set up for ATV that uses channel 3 input. The crystal frequency I chose is 41.333333 Mhz, which, after multiplication and heterodyning, produces an output on 439.25 Mhz. The power level at this point is about 400 mw. This is fed through a 6 dB coaxial pad to the input of a Motorola MHW-710 power amplifier module. The pad is to reduce the amount of power being fed into the MHW-710 and to force a match between it and the output of the up-converter. I have found that the '710 is very critical about impedance matching on it's input port. If fed with a source impedance other than 50 ohms, the linearity suffers badly. Both the XV4 and the MHW-710 are soldered to a single ground plane and ferrite beads are used liberally to prevent ground loops and spurious oscillations. The block diagram of the transmitter is shown in figure 2.

The output power to the antenna is controlled by the visual and aural level controls on the front of the modulator unit. I find that I have no problem getting 13 watts of visual carrier power, but if modulated at this drive level, severe sync compression occurs. To prevent sync compression (as monitored with a directional coupler/demodulator and scope) the drive must be reduced to where the unmodulated power output is about 6 watts, which results in an average modulated power output of about 3 watts. Both the up-converter and power amplifier module contribute to the sync compression. However, by using a Proc-Amp 1 (available through Griffin Enterprises...see ad this issue) in line with the video from the camera, the sync pulses can be stretched before entering the transmitter. With this set-up, the drive level can be run wide open, resulting in 13 watts peak output and about 7 watts average power, with a commercial standard 100/40 video-to-sync ratio. The video quality from this transmitter is outstanding, with differential phase and gain specifications much better than the average ATV station. The output signal is vestigal sideband, which contributes to the overall quality of the video and audio, since that is what a TV receiver was designed to demodulate.

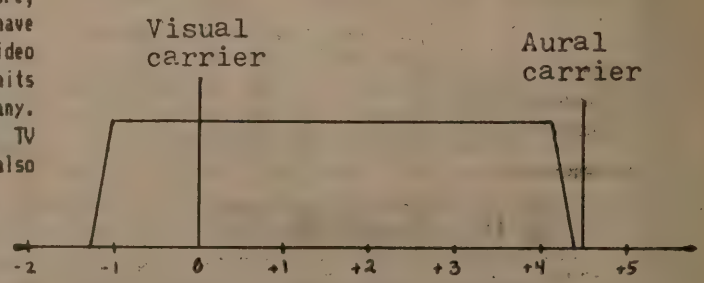


Fig. 1 - Vestigal Sideband Response

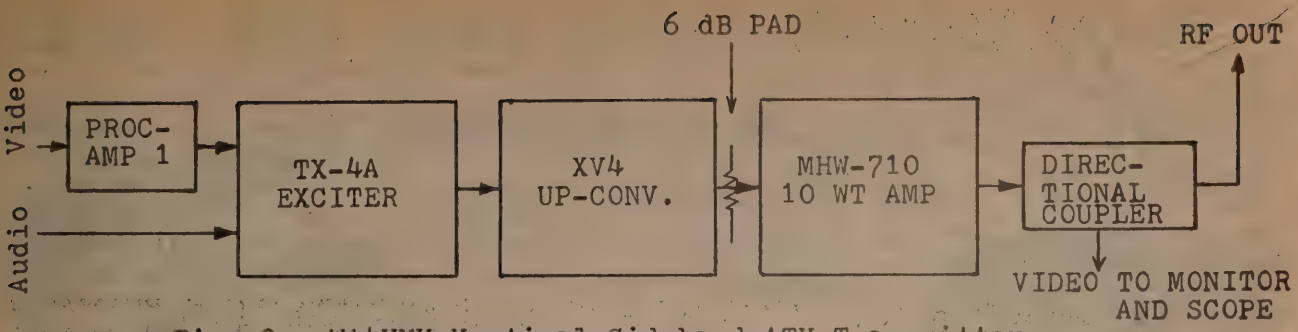


Fig. 2 - WA4UMU Vestigal Sideband ATV Transmitter

"In the next issue of "A5", we will discuss an "Off-Air VSWR & Signal Monitor for ATV", 73's -WA4UMU/K4NHN

Station totals released

The commission has announced the following totals for broadcast stations licensed as of Nov. 30, 1983:

AM radio	4732
FM radio	3513
FM educational radio	1113
UHF commercial TV	334
VHF commercial TV	533
UHF educational TV	172
VHF educational TV	112
UHF low power	67
VHF low power	181
Total radio	9358
Total TV	1399

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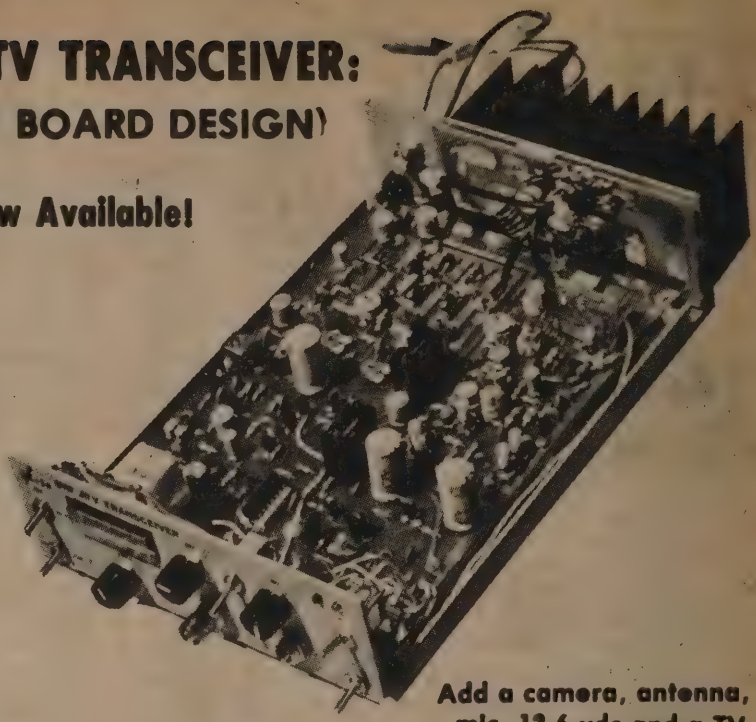

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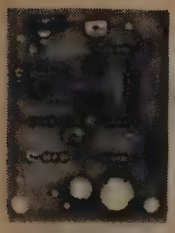
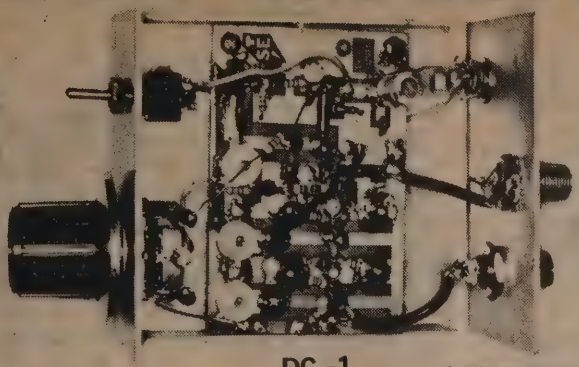
ATV KITS AND MODULES



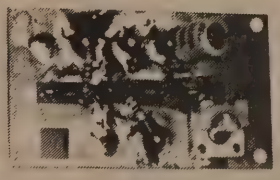
SA-1



DC–1

LA-1

A-2



P-1

VM-2

Shipping and Handling: Add 3% — Minimum $2.00

Indiana Residents Add 5% Tax.

Add Additional $3.00 for Blue Label

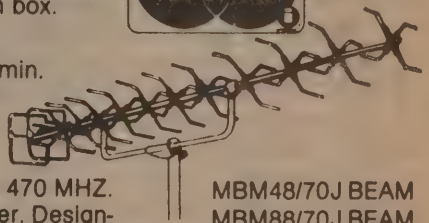
VM-2 VIDEO MODULATOR — Wideband collector video modulator for solid state exciters such as those from GLB and Hamtronics. Input for 4.5 MHZ audio sub-carrier. 2½" x 1½"; **$15.50** kit, **$19.95** assembled.

A-2 4.5 MHZ AUDO SUB-CARRIER — Accepts audio from VCR or GLB audio processor to provide ATV audio on TV set. Has on-board voltage regulator and shielded inductor. 2¾" x 1"; **$19.95** kit, **$25.95** assembled.

SA-1 VIDEO SYNC AMP — Provides separate video sync gain control for VM-2 above or SE - 1a transceiver. Useful when driving solid state amps. 1¾" x 1¼"; **$15.95** assembled, **$12.95** kit.

DC-1 UHF CONVERTOR — Varactor tuned with 2 RF stages. BFO-74 input standard. Double sided stripline design. Outputs to TV ch. 2, 3, or 4. Can be tower mounted. 11 — 14 vdc. 2" x 3"; **$39.95** kit, **$54.95** assembled, **$89.95** complete in box. **Box kit $30, includes all hardware for the DC-1.**

P-1 WIDEBAND LOW NOISE UHF PREAMP — Uses BFQ-74 transistor for min. 18 db gain and 0.6 db noise figure. Covers 420—450 MHZ band. Other frequencies received with change in input inductor. 2¼" x 1 3/8"; **$22.95** kit, **$31.95** assembled.



MBM48/70J BEAM
MBM88/70J BEAM
15.7dBd **$59.95**
18.5 dBd **$89.95**

LA-1 UHF AMPLIFIER — Uses 15 watt MRF641 transistor with 7.8 db gain @ 470 MHZ. Stripline inductors with on-board pin diode antenna switching for a receiver. Designed for wideband color video with exciters such as the GLB T450L that provides up to 3 watts drive. Drilled and tapped heatsink included (4½" x 1¾"). 1 to 3 watts drive typically gives 6 to 18 watts output. 12 — 14 vdc operation @ 4 amps max. Double-sided board is 4½" x 2". **$79.95** assembled with test data.

LA-45 UHF AMPLIFIER — Uses MRF 646. Input power of 6-15 watts typ. gives 20-50 watts output. Biased for linear operation. Kit includes all parts, instructions and 4.2"x 3" double-sided stripline board. Needs 12-14 vdc @ 9 amps max. **$64.95** kit, assembled **$80.** 4"x 5.5"x 1.75" heatsink **$15.00.**

GLB T450L TRANSMITTER — 4½"x 2" RF board typically supplies 2—3 watts FM output, 1—1½ watts average video RF output. Changes for wideband video modulation provided. Comes with crystal for 439.25 MHX audio kit above. Also included separate 1"x 4" audio processor board which supplies audi for FM modulation for the A—2 4.5 MHZ audio kit above. 12—14 vdc @ 2 amps max. **$69.95** kit, **$89.95** assembled and tuned. *Kit now with pre-wound coils*

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Channel 13

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BAVARAIN ALPS MOUNTAIN-TOP RELAY SYSTEM ALLOWS PROUD RELIABLE VIDEO COMMUNICATONS

by Dipl.-Ing. Josef Grimm DJ6PI

Our A5/USATVS international correspondence with German ATV/SSTV groups has been quite successful. We exchange monthly publications on a regular basis and communicate also in videotape exchanges and by lengthy written letters. One system interested us greatly; the 434/1285 Mhz. FSTV Repeater "link" located some 5200 feet above sea level at Tegelberg (near Fussen) in Southern Germany.

Amateur television is allowed in Germany on the bands of 70 cm, 23 cm, 12 cm and on all higher bands. Because of technical problems the most activities are on 70 cm. Southern Germany is an area like the Rocky Mountains. The distances in ATV for a good picture and sound quality reach from 5 to 20 km only.

Therefore the south-German ATV enthusiasts looked for a high mountain, to establish an ATV-repeater. No other RF sources should be on the top of the mountain (Broadcast and TV-transmitter, Amateur-FM and police and energency repeaters). The top of the mountain should have a house with electricity and with cableway. We found the mountain with all these necessities in the Bavarian Alps, the mount "Tegelberg" near Fussen, Southern Germany, 1725 m above sea-level. (about 5200 feet above sea level).

After finding the suitable location for the repeater, the input and output frequency has been to be cleared up. As almost all TV anateurs had transmitting equipment on 70 cm, we decided, to place the input on 70 cm, the output on 23 cm. So the difficult work of buiiding a 23 cm ATV transmitter had to be done one time only. The input-link is: picture carrier 434.25 Mhz, tone carier 439.75 Mhz, according to the European CCIR system of 5.5 Mhz distance between picture and tone carriers. The output link is: 1285.5 Mhz picture carrier, 1291 Mhz tone carrier.

Within a short time the repeater was built, almost all homemade. It is fully transistorized, except the power amplifier. This is a 2 C 39 BA-tube cavity amplifier with 25 watts output. In Germany the power at the repeater-antenna is restricted to 15 watts. Weather-proof antennas were built, and the repeater was mounted on the top of the Tegelberg cableway house on December 20th, 1980. Not everything was perfect, but the repeater could be reached from a radius of 180 km (110 miles).

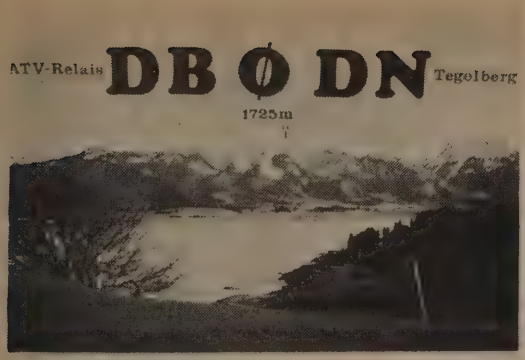
After the first pleasure about the new great ATV-activities, a bitter notice came from the German airforce. A radar system has been disturbed in a distance of 180 km, working on 1280 Mhz. We had to switch off and to find out the reason. The common picture-tone power amplifier produced an unwanted product at 1280 Mhz. We were not able to eliminate it by filters, without deteriorate the picture-channel. We built a separate sound-transmitter on 1291 Mhz., fully transistorized with 2 watts output and a separate weather-proof antenna for this transmitter. New tests with the Bundeswehr (German Army) showed no more disturbation of it's radar.

Succesively we improved the repeater, but we had still big disturbations on the 70 cm uplink. In Germany the output of the 70 cm FM - repeaters lies between 438 and 439 Mhz. amidst the picture channel. We mounted more selective receiving antennas. Moreover small-power burglary-alarm equipment lies in Germany between 433.05- 434.79 Mhz, amidst the picture channel. One strong alarm-equipment was working in a church at the foot of the Tegelberg, only 600 m from the repeater. It produced a heavy moiree on the pictures. After long negotiations the church moved to infra-red alarm.

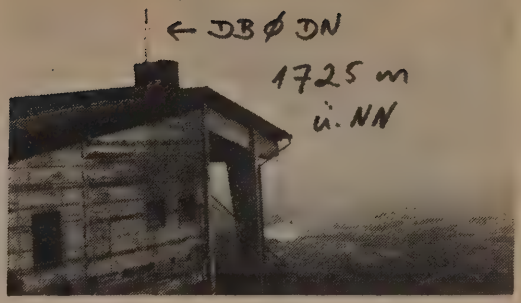
As the transmitting antennas (stacked cavity resonator antennas) are weather-proof, there is no difference in transmitting quality between rain, snow or ice on the antennas. The 70 cm receiving antennas are 4 Yagis, scattered to 4 directions. The wanted Yagi is chosen by an additional tone to the voice of 10; 11; 12; or 13 Khz. Without this direction tone a weatherproof round receiving antenna is working (4 stacked cavity-resonator antennas). In summer the tone-selected Yagi is 6 db better, in winter with snow and ice on the repeater-Yagis the cavity antenna is better.

We are proud of our ATV- repeater, which has the most extensive transmission and receiving reach of all European ATV repeaters. Maybe in American eyes a reach of about 360 km (ca. 220 miles) is not much for ATV. But we are content to have ATV-QSO's every day in good colour quality via the repeater DBØDN.

Some pictures are added. The picture and sound identifications of the repeater are PROM- produced.

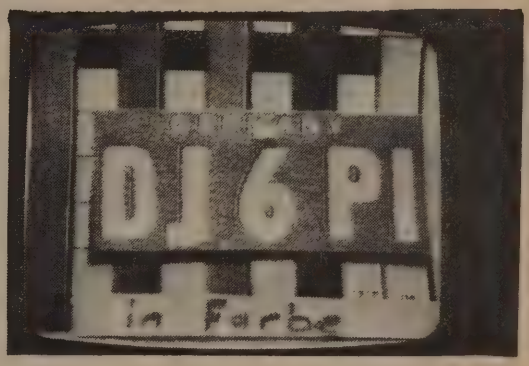


Qth of DBO on ATV Repeater



Tegelberg Cablehouse and Antennas

Repeater ID received over 60 miles away in color!



Authors test pattern thru DB6DN repeater

BEWARE!
Somewhere out there lurks a creature of infectious disease...

"HAS THE ATV BUG BITTEN YOU YET?"

Some say, it's just a question of time...

by Mike Stone
Editor/Publisher of "A5 ATV MAGAZINE"

ATV'ers are certainly a different breed of "bug". They seem to "stray off" independently on their own, within the "world's greatest hobby" of Amateur Radio communications. In the infant "larve" stages, the ATV BUG tends to learn, grow and follow in the "footsteps" of others. Once formally educated and full of self confidence, the ATV BUG emerges and "breaks away" from the "pack" so to speak and ventures into a fascinating new world of "visual communications".

There is something to be said for the popular HAM-TV slogan; "Amateur's Should Be Seen As Well As Heard!" The thrill of seeing those first "video sync bars" turning into a recognizeable TV picture can hardly be matched by any other mode. And when the sending party starts "talking to you" right out of the speaker of your TV set, the world just never is quite the same!

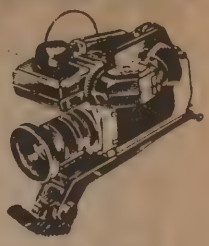
As if by magic, once bitten by the "ATV BUG", this brave little creature defies all odds and obstacles and never takes "it can't be done" for an answer. Relentless in pursuit, the ATV'er accepts the challenge of UHF-TV communications and travels a slow but steady road of trials and tribulations. Many warm and cold nights will the ATV'er spend in front of a quiet "snowy screen" of noise-filled pixels, constantly scanning the horizon with a beam, searching for even a faint trace of a detectable video signal. More often than not, even an unidentified FM carrier or interfering nearby commercial station QRM will do, as it gives the "ATV BUG" something to work on in the meantime, building the proper filter to make rid the "pesty pest".

The ATV'ers reward for sacrifice after a long winter of quiet hibernation in a well built "nest", is an occasional freak of nature called an "opening", that allows one rare species to "see" (and maybe even "talk" with) another. Surely, a far piece down the road that would take forever if traveled by foot. This occurance allows the ATV BUG to have a true feeling of self-achievement and to know that it has accomplished a task that few others even begin to dream about. Perhaps that is why the ATV BUG is so thrilled with seemingly so little success. A proper soldered BNC, a rigid Type-N, or low VSWR on a second hand run of 75 ohm hardline, it all brings satisfaction to one of God's little creatures in the wild.

If you think the ATV BUG hasn't "bitten you" yet, you might then ask yourself how you happened to come about to read this article? It is encompassed in a package of monthly plaque that seems to infect thousands all over the world. You have been "bit" my friend, and I have bad news for you; "there is no known cure for this growing disease...." -WB8QCD

TUNE IN THE WORLD OF HAM-TV

UNITED STATES AMATEUR TELEVISION SOCIETY "A5 VIDEOTAPE LIBRARY"



"Sorry, A5/USATVS Members Only!"

INTERNATIONAL COOPERATION/EXCHANGE

AT last! A growing "international" collection of VHS/BETA/UMATIC videocassette taped programs designed for the educational advancement, promotion of, and entertainment of TV technology to the AMATEUR TV enthusiast. Selections from the "A5" Videotape Library are provided "free of cost" to USATVS members subject only to duplication, material and postage reimbursement costs. Members may provide their own blank videocassette eliminating the "material" charge. Standard "quality" videotapes are used such as FUJI, MEMOREX, SONY, TKD, etc. which retail in many video outlets from $10.00-$15.95. All "A5" Videotape Library programs are shipped "1st class" and are "duplicated" of ¾ inch, broadcast quality (some time base corrected) master tapes. "Do you have videotape material that may be of interest to others?" If so, send us a copy for "review" and if accepted, pick out a program of your choice at "no-charge". All material should be shipped in "protective" packaging to:

USATVS "A5"
Videotape Library,
c/o QCD Publications,
P.O. Box H,
Lowden, Iowa 52255

(allow 3-4 weeks for delivery).

• Live Video of Iowa

VIDEOTAPE LIBRARY PROGRAMS AVAILABLE:

THE TELEVISION EXPLOSION—Part 1—The History of Commerical TV from it's inception to the 1980's. How TV has educated us and changed our lifestyle. Cable TV, Subscription TV, Two-Way TV, Game TV, Direct Broadcast TV, VCR's, Video Discs, Computers TV. Part 2—ST. AMBROSE College Short Feature (Future TV). Part 3—The Television Connection (Corporate TV) Part 4—How TV Works. Part 5—TV Anchor People Problems. 1 Hour Plus VHS/BETA Color #A5TV100.

BEST OF ATV CONTACTS—Edited by A5, narrated by WB0QCD, a collection of on-the-air FSTV signals received from Eastern, Midwest and West Coast Amateur Television Stations. Detail to station setups, gear antennas, etc. Segment on "How to have fun with ATV", a great demo-tape to get interest going on ATV! 2 hours VHS/BETA B/W and color. #A5VT101.

WORLD OF SSTV—Great Black and White 8/16 second high resolution (256 pixels per line by 128 lines) pictures, Color SSTV and newly invention Motion SSTV by Tom Hibben KB9MC, W6VI0 and voyager segment of Jupiter and Saturn, local Voyager News Spots with Amateur SSTV operation. Demonstration of Robot 400, WRAASE SC422, TRS80C W0LMD & W9NTP systems. BRUCE BROWN WA9GVK from Metrovision in Virginia shows early SSTV Capthorne MacDonald digital camera and the only 45 rpm SSTV record. Bruce continues with early day SSTV comments. Don Miller W9NTP of Waldron, Indiana lectures theory and shows a film recently returned from Europe depicting early SSTV, Color SSTV experimentation, stereo TV, demonstrations of 1978-80 Medium scan TV test. Clay Abrams K6AEP of San Jose, CA speaks on what is happening on computers (TRS80C) and SSTV. Clay annouces the first 256 X 256 TRS80C Modification and discusses upcoming FAX capabilities resulting from his recent work with Dr. Ralph Taggart. Film depicting K6AEP, JA2BZC contest won on Japanese national TV. Dr. Robert Suding W0LMD lectures on his work with homebrew microproccessors and SSTV including historical development and current experimentations. 4 hours VHS/BETA Color. #A5VT102.

HAVING FUN WITH AMATEUR TELEVISION—You're on-the-air with Ham-TV, but how do you keep it interesting? This program clearly demonstrates how ATV can be fun and how the FSTV mode can best serve the public. Shots from marathon runs, JPL, yacht races, weather watches, air mobile TV, motorcycle TV, parades, Halloween parties, hot air ballon events, go cart grand race coverage, etc. Some interesting work by Amateurs at the Kettering Medical Center Amateur Radio Club on medical research using electronics and computers (recently obtained National Media Coverage). 2 hours VHS/BETA B/W Color #A5TV103.

A5/USATVS NATIONAL CONFERENCE 1983—Filmed Sept., 1983. On location at York, Pennsylvania, this 12 hour 2-pak video tape shows all that went on at the 4th annual get-together by ATV'ers and other Amateur Radio Specialized Communication operators! Welcoming by WB0QCD, audience introductions, Bruce Brown of Metrovision, Dr. Don Miller W9NTP, Indiana, talk by Dr. Robert Suding W0LMD of Virginia; 2nd day talks and lectures Congressman William Goodling, getting started in amateur radio, computer BBS demo, Heath Company Clone Robotics demo, AMTOR (error-free RTTY) by Paul Newland (Bell Labs), Having Fun with ATV by Mike Stone WB0QCD, and SSTV basics. Sat. nite session banquet talk by W9NTP, Bruce Brown WA9GVK, history of ATV, International ATV videotape exchanges with Dr. John Fox WB2LLB/4, FSTV antenna stacking techniques and RF tips by John Beanland G3BVU, and lots more! 2 tape-pack series Color-6 hour VHS format only (12 hours) ($50.00 plus tapes). #A5VT104.

BEST "OFF-THE-AIR" COMMERCIALS/TV BLOOPERS—Part 1; A rare collection of unseen "nasties" kept and assembled by many studio video technicians that will have you positively "howling" with laughter. See commercials that never made airtime, news, sports and weathercasters in frustration, standup out-take sequences, major goofups, revenge antics by control room operators. Some nudity and a lot of foul language. Unfortunate sync lock errors in some sequences due to mulit-generation handdowns. 1 hour VHS/BETA B/W-Color. **BEST "OFF-THE-AIR" COMMERCIALS/TV BLOOPERS**—Part 2; More of what you enjoyed so much in our Part 1 sequence. Lots of NEW material never before seen. On-The-Air goofups from the Satellite News Channel and many local TV stations from the midwestern and eastern areas. Spoofs on commercials the way you'd like to see them! Another hour of pure laughter. VHS/BETA B/W-Color 2 hours #A5VT105. **BEST "OFF-THE-AIR" COMMERCIALS/TV BLOOPERS**—Part 3; The nations "farmers" will particularly enjoy the "John Deere" spoofs (out-takes from Deere Production facilities in Moline, Illinois), more TV bloopers in the tradition of Parts 1 and 2. VHS/BETA-Color 2 hours #A5VT106. **BEST "OFF-THE-AIR" COMMERCIALS/TV BLOOPERS**—Part 4; 2 hours #A5VT107. SPECIAL OFFER: Order Bloopers 1, 2, 3 & 4 (6 hours) on VHS for $50.00, BETA for $60.00 (2 L500 tapes) plus tape material charges.

INTERNATIONAL ATV (England/France) de WB2LLB—First DX exchanges between USA TV amateurs and ATV'ers in England (G8CJS) and France, Ham TV and Commercial TV programming from both countries. (PAL/SECAM converted to NTSC by John Fox) Visit the RSGB Exposition at Alexandria Palace (1978) and the shacks of many BATC members including G4BZK, G8GLQ, GW800J, G45BVK, G8AAT, GW3JGA and others. See the fantastic video special effect generator built by GW8IJJ! Absolutely great video from "across the pond"! France has a lot of non-Ham TV DX'ers with equipment and shacks that you won't believe! Visit the F9QW and his outstanding antenna farm and mobile station, a "hidden closet" DX operation of F6ADT and cruise down the famous "Bateau Moushe-Seine" river by boat! We know you'll enjoy those French TV commericals too! VHS/BETA BW/Color 2-hours #A5VT108.

INTERNATIONAL TV "Around the World" de WB2LLB/4—3rd videotape exchange between Dr. John Fox (USATVS International Videotape Coordinator/Editor) and Alain Picad F6BFY of Paris, France. Commercial TV sample programming from Belgium, France, Switzerland, German, Holland, Africa (Ivory Coast), Luxembourg, Argentina, Brazil, United Kingdom, Beruit, Canada and Russia (Ukraine)! Color video segments on test patterns, Die Muppet Show (German version), Paris illegal TV station "WADC" (Channel 18) in 1979 before the government confiscated over $70,000 worth of gear, video garden juke-box, upbeat French Minuet musical, funny full-feature color cartoon, F1GDJ Metrosat and other TVRO systems, friendly "bird-feeding", long "Tour de Pais", France by motor and Cablecar (all the sites), personal SYL guitar concert of music from Argentina, and Russian "rock" group and other selections. A very enjoyable videotape. 2-hours VHS/BETA BW/Color #A5VT109.

INTERNATIONAL TV "French Holiday" de WB2LLB/4—4th exchange with French TV enthusiast Gerard LeTrov. Annual French Nationale Military Parade (Motorcade with the French President). Filmed live on 14 July 1983, many colorful marching band routines, fantastic videotape footage of the Bastille Day "Air Show" in Paris, closeup interview with the French President (FRANCAIS), reviewing of the lastest in French technology of military hardware, more samples, French TV programming with FR4 (will hot gossip make it in the USA someday?). Video "rock" segment, France's national competitive bicycle race around Paris, a tour of Paris by rail. SECAM convertet to NTSC (flutter). 6 Hours Color #A5VT110.

INTERNATIONAL ATV "Hams in Germany/ATV Australian Style" de WB3LLB/4—5th videotape exchange with VK5KG John Ingham: Coverage of Germany's largest AGAF Hamvention, local hamshacks and antenna systems. See German OSCAR Satellite DX'ers and their multielement antenna arrays. Some actual on-the-air ATV 950's 144.358/433.5 Mhz. using rooftop microwave dish antennas. Beautiful pictures from the Adeline, Australia ATV Repeater system. Details on construction on the relay system itself and several on-the-air ATV exchanges thru VK5RTV/R. Very enjoyable! 2 hours Color #A5VT111.

"A VACATION TRIP TO RUSSIA"—with Lee Menard W4IQW Leave your Kremlin Hotel and tour the sights of Moscow, Russia (and other areas) in living color! This 3 hour tape is the rare workd of SSTV'ER W4IQW who took his portable VCR equipment with him into the Communist State unrestricted by local officials. Detail to buildings and architecture. Enjoy the company of the other American and Foreign travel companions as they tour the sights by walk and by tour bus. See the Russian soldiers dodge from the camera and the relay races at Kladkov. An unusual look at the country most Americans will never see. 3 hours plus VHS/BETA Color #A5T112 (Use 4 hour rate base).

"FALL FUN IN THE MIDWEST"—a collection of rural farm community scenic trips in the Fall of 1983 by automobile. Trips along the Mississippi River and some unusual Halloween ATV Costume Parties. Pekin, Illinois ATV'ers K9ILA and W9LII demonstrate ATV Duplexing with W9LII showing off his elaborate Ceramics Distribution Center business. 2 hours VHS/BETA Color #A5VT113.

"MORE INTERNATIONAL TV FROM AUSTRALIA AND FRANCE"—de WB2LLB/4 (A) 6yh and 7th videotape exchanges with VK5KG and French Amateurs. A very interesting narrative on the Apollo 13 Disaster and why it really took place. How computers are used by Australian Amateurs on ATV, South Australian Christmas Parade ATV Coverage. (B) Christmas parade continued, icentennial Hot Air Balloon Show in France, CQ put to Music (France) and a BBC Broadcast; Ground Zero Victory Road-The WAR GAME. 12 hours requires 2 VHS (T-120), 3 BETA (L750) TAPES ($50.00 plus material charges). Color #A5VT114 and 115.

"EUROPEAN HUMOR MUSIC and NOSTALGIA"—de WB2LLB/4 - Great Music and Comedy from the BBC and ITN (Benny Hill segments) plus some old time Steam Train Nostalgia traveling thru Europe. Special beginning reduced bandwidth TV Demo included. Material supplied by Norrie MacDonald GM4BVU in Scotland. 2 hours VHS/BETA color #A5VT116

DAYTON 1984—Highlights of the World's Largest Ham Convention held in Dayton, Ohio. Complete coverage of Friday night SSTV W9NTP/WOLMD Experimenter's meeting, Saturday night FAX meeting and FSTV Hotel to Hotel demonstrations, Show Booths and FLEA MARKET coverage. 4 hours Color VHS/BETA #A5VT117

A5 COLOR VIDEO COURSE #1—Here is a serious, "professionally produced" course that you have always looked for (SONY). Program #1; Properties of Color (45 min.), Program #2 Color Camera Systems (43 min.), Program #3; Video Display Systems (37 Min.), Program #4; Encoding NTSC Color (38 min.), Program #5; Decoding NTSC Color (35 ming.). Segment #2-3m "Sight and Sound Videotape Productions"—Program #1; Camera Techniques (lenses/effects, Teaching a New Camera-Old Tricks). Program #2—Setup-Operation and Care. Program #3—Lighting. Program #4—Sets. Program #5—Perform. Program #6—Producing a Program. An absolute must for the serious Amateur TV Operator! 6 hours VHS/BETA Color #A5VT130.

THE FLIGHT OF THE LEMONDROP—As featured in the A5 ATV MAGAZINE article (August 1983, Vol. 13, #8), Pilot Richard Drake navigates his Hot Air Balloon "LEMONDROP SPECIAL" over Moline and East Moline, Illinois during the 3rd Annual WQAD-TV (ABC TV-8) Fall Rally. Sit back and enjoy the beautiful "live" color pictures filmed both from the balloon and from the ground. KA@AYC hitches a ride on board equipped with FSTV gear transmitting on 439.25 Mhz. Hear local ATV'ers coordinating on a local 2 Meter Repeater. Special after flight segments of previous evening launches filmed by W9RI and actual footage of the LEMONDROP flight as received from the ATV base station facility. 2 hours BW/Color #A5VT131.

SPECIAL SAMPLE TAPE OF ALL A5/USATVS PROGRAMS—Don't know which A5/USATVS Videotape to order? Try this one! Brief samples of our entire video library collections depicting highlights with order numbering information. Once you've decided, return tape for duplication of selected program and save material charges! BW/Color, 30 minutes, VHS/BETA $20.00 (includes price of tape). Add return postage/handling fee. #A5VT140.

A5 LECTURE SERIES #1: "Coaxial Cable Specifications" by Ken Roth WB9MTL representing Belden Wire and Cable Company, Feb. 83, produced and presented by the Kettering Medical Center ARC. Program #; "Biological Effects on Microwave Radiation" FCC talk by Robert Cleveland (PHD Penn State). Program #' "Bridges to the Expansion of Commercial Television" (High Definition TV) by Don Fink (MIT) former chairman of NTSC and co-founder IRE (IEEE). Discussions on the movie industry move toward commercial videotaping, the new NHA Japanese 1100 line/25Mhz. TV Super System, Compact Video Inc. USA 625/10 Mhz. experimental station, VHF-UHV band crowding problems, Cable-TV, Direct Broadcast Satellites, VLSIC PAL/SECAMM/NTSC Frame Storers, Smart TV transmitters/receivers, single world-TV standards, multi-lingual sound subcarriers and lots more! Program #4; "Filtering and RFI Problems at UHF Frequencies" by John Beanland G3GVU/1 (Spectrum International), Concord, Mass. (1982 A5 Midwest Conference). Program #5; "How to Get Your Wife and the World to Love Amateur Radio" by Dr. Don Miller W9NTP, Waldron, Ind. (Dinner Banquet Speaker at 1982 A5 Midwest Conference). Program #6; "Public Service ATV Weather Watch/6-Line Amplifiers" by Warren Weldon W5DFU, Tulsa, Oklahma (1981 A5 Midwest Conference, slide-show presentation. Six Hours of programs! BW/Color #A5VT120.

A5 LECTURE SERIES #2 Program "1-Digital-A Revolution in TV! Another great FCC videotape lecture (filmed in July 1982) by Dr. Kerns H. Powers, Director of Communications at the David Sarrnoff Research Center. "Trying To Create A Worldwide Standard" is the theme of this most interesting 1 hour 20 minute B/W session. (Excellent!). Program #Amperex Video Seninar (1&2) on "Plumbicon TV Camera Tube Care and Operationg Procedures (installtion). Ever wondered just how broadcast TV tubes are "made" from the beginning? From "glass blowing" and assembly in the clean-room to final testing. 1974-47 minutes. (Very interesting). Program #3 Field News Producer Alan Kahl W6RCL just back from Tehran gives his perspective as a news journalist on the touchy relations in the tense 1981 Iran period. Program #4; Jay Reisman advises a local Southern California Club on how to best get Ham-Radio stories and news events "aired" for broadcast. The tricks and necessary preparations for getting attention to your story. Great Club Public Affairs Officer lecture. Program #5—An Evening With Wayne Green (some intermittent audio difficulties) W2NSD of 73 Magazine. Program #6; Ever wondered how the Westlink Radio Network "puts it all together"? Jim Davis shows us how!. Program #7; Bob Mackay N8AEA kicks off a past Dayton, Ohio Media forum panel for Club Public Affairs Officers on how to best get that publicity out to the news media properly. Jim Davis KC8PL introduces the panel guests. The panel consists of Bill Pasternak WA6ITF (Westlink), Herb Lipson W8FBH, Fred Maja W5YI, Joe Schroeder W9JUY (HR Reports), Roy Neale K6DUE and Steve Mendleton WA2DHF. Bert Hicks W6MOV shoots the camera, #3, #4, #5, #6, and #7 produced by Bill Pasternak WA6ITF (Westlink). Program #8; A Tour Of The 1982 Dayton, Ohio Hamvention. (Video by WB0QCD) Six Hours VHS/BETA BW/Color #A5VT121.

1983 A5 LECTURE SERIES #3— (Video Arts) #1 York, Pennsylvania ATV National Conference John Beanland G3BVU of Spectrum International lectures on UHF Multielement Antenna stacking and signal gain considerations. #2 WBOQCD narrates what can be done by ATV'ers for small production CATV local TV channels, Video highlight demo segment on Lowden (Iowa) community television (LCTV9). #3 "Electonics The Link Between Us" (video Outreach Series Production) proved by EIA, depicting the history of electronics (TV/Radio/Computers and other forms of communications) and how it effects our day to day living. (One of the best professional programs in the A5/USATVS Videotape Library). Eric Severeide, (CBS), Jim Henson (Muppets), Stevie Wonder, Kenny Rogers and others (27:35). #4 Electronics - Your Bridge to Tomorrow (EIA tape continued, 16:30).

A5 LECTURE SERIES #4—Highlights of the 3 Day 1984 Central States VHF Society (Cedar Rapids, Iowa). The 18th annual get-together of VHF/UHF'ers is filmed by ATV'er Diock Isard WBOVVZ and Charles Calhoun WORRY. Includes; (1) Quiet Preamps At Work by Paul Shuch N6TX (Preamplifier used). Special OSCAR 10 SSB audio compandering demo included. 1½ hours (2) Direct Broadcast Satellites (DBS) by Al Katz K2UYH. 12 Ghz. geostationary satellite signal theory. 1½ hours. (3) Unusual parkin glot VHF/UHF "mobile" antennas. (4) Highlights of the Friday afternoon antenna and preamp measurement tests. (5) Friday evening Ralph Wallio WORPK, Jan King W3GEY and KORZ. Discussion on future plans, PHASE 3, geosynchronous satellites, importance of use of OSCAR 10, JAMSAT (JAS-1), French ARSENE satellite and U.S.A. PACSAT satellite. Interesting Q & A session. 1½ hours. Total Tape program time 4 plus hours. Color VHS/BETA #A5VT124.

A5 LECTURE SERIES #5—More 84 CSVHFS Conference (continued TAPE #2). Includes; (7(Packet Radio with Ralph Wallio WORPK (30 minutes). (8) Techniques for 1296 by Al Ward WB5LUA. Transverter building project details. 1 hour. (9) VUAC Committee report by Dick Jannson WD4FAB. 23/23 CM Bandplanning (interesting ATV segment). 1 hour. (10) (83 Conference talk) radio Astronomy with Tom Clark W3IWI. 1½ hours. (11) 1983 Antenna tests. Total tape program time 4 plus hours. Color VHS/BETA #A5VT125.

A5 LECTURE SERIES #6—(WORRY)-More 84 CSVHFS Conference (continued TAPE #3). (12) Additional 84 Antenna tests. (13) VHF/UHF Mobile Antennas. (14) A digital Antenna Positioning System with Pete Sias WDODRL, Salanis, Kansas. Satellite, EME, TVRO positioning. 1 hour. (15) 144 Mhz. DX'pedition! -Lance Collister WA1JXN/7, Montana. (16) 220 Mhz. DX'pedition! -Ed Gray WOSD, South Dakota (AMSAT OSCAR FIJI expedition with Jim Smith). Total tape program time 4 plus hours. Special offer to VHS users; Send 2 T120 tapes (12hrs.) for all CSVHFS Conference programs (tapes 1,2,3) for just $50.00. Color VHS/BETA #A5VT125.

A5 LECTURE SERIES #7—1984 A5/USATVS Fall ATV National Conference. Located in conjunction with Radio Expo, Guest speakers include; FSTV DX'ing -WBOQCD, using computers on ATV/SSTV -Clyde Miller WB4AOH -Kentucky, Introduction to ATV -W6ORG California, Hires SSTV/FAX Demos, Television Appreciation 101 -WBOQCD Iowa, UHF-TV/Microwave RF/Vestigal SB Filtering/ATV Antenna Theory Workshop -John Beanland G3BVU Mass., The Future of ATV -Henry Ruh KB9FO Indiana, Homebrew ATV Projects and lots more. 6 hours. Color VHS/BETA #A5VT127.

A5 LECTURE SERIES #8— Highlights of WD4FAB 900/1200 ATV Bandplan Controversey 1984. It started with a prepublished QST article that turned into a very complicated multi-mode communications battle for the new 900 Mhz. and existing 1200-1300 Mhz. band. Videotape footage from July Central States VHF Society Conference in Iowa and August SCRRBA 5 hour special meeting marathon. Detail to other non-ATV Mode requirements. Very interesting program on the complicated formation of bandplanning. 6 hours VHS/BETA #A5VT128.

THE FLIGHT OF THE SPACE SHUTTLE COLUMBIA—Remember this historic flight forever on videotape of the STS-9 Mission of Astronaut Owen Garriott W5DFU and the crew! Preflight coverage with specific detail to the Amateur Radio project. Exclusive video footage from the SATCOM F1R Satellite of the Nov. 28th takeoff launch, experiments in space to touchdown in California 10 days later. Edited down from over 40 hours of recording. This library addition is sure to please! 4 hours plus, B/W Color VHS (XLP). BETA (III) #A5VT132.

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- **OVER 10 WATTS PEP RF OUTPUT.** Crystal controlled continuous duty transmitter. Specify 439.25, 434.0, 426.25 standard or other 70 cm freq. 2 freq option add $26.
- **BASE, MOBILE, or PORTABLE.** Use the builtin AC supply or external 13.8 vdc at 3 amps.
- **TWO VIDEO AND AUDIO INPUTS** for camera, VCR, or computer. Wide bandwidth for high resolution broadcast quality color video or computer graphics. Standard broadcast subcarrier sound which is heard thru the TV speaker. On-carrier audio optional at $40.
- **RECEIVE ON YOUR STANDARD TV SET** tuned to channel 3 or 4. Sensitive varicap tuned downconverter covers simplex and repeater freq over the whole 420-450 mHz 70 cm amateur band. Low noise NE64535 preamp stage.
- **VIDEO MONITOR OUTPUT** of your transmitted picture makes video gain, lighting, etc. adjustments easy & accurate.
- **ATTRACTIVE 10½ x 3 x 9 CABINET.**

SO WHAT ELSE DOES IT TAKE TO GET ON ATV?

Any standard TV set is used as the receiver. The TC-1+ downconverts the 70 cm ham band down to channel 3 or 4. Just connect a short coax from the TC-1+ to the TV sets antenna input.

Any source of standard 1 volt composite video, such as is found in portable color or black and white cameras, VCRs, or computers can be plugged into the TC-1+ and transmitted to another station. Repeat SSTV to local ATVers. Audio can be from a low Z dynamic mic, or line level from cameras, VCRs, computers, etc.

The antenna is really the secret to success with ATV. We suggest the MBM 48/70 J Beam antenna with its high 14 dbd gain and wide bandwidth, and some of our Saxton 8285 low loss coax between it and the TC-1+. Antenna heigth at or above the tree tops makes a big difference.

Its really quite simple to have your own TV station capable of sending and receiving video 15 to 100 miles and more. DX with this set up is similiar to 2 meter FM with omni antennas.

THATS IT! It's easy!

ACCESSORIES:

KLM 440-27 14dbd 70cm beam antenna	$89 del.
450 AEA Isopole omni antenna	$59 del.
Saxton 8285 low loss 50 ohm coax, 100 ft.	$41 del.
Mirage D1010N 100 watt pep all mode amp	$289 del.
Hitachi HV62U black and white TV camera	$179 del.
Hitachi GP-8 8:1 zoom color camera	$749 del.

If you wish to build your own system, see module page. The TC-1+ contains the TXA5, PA5, FMA5, TVC-2L, & DM-1 module functions.
Tech class or higher license required for purchase. Normal shipment within 2 days on charge card or postal money order.

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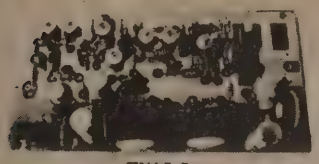
4-84

TOM W6ORG MARYANN WB6YSS

Build Your Own ATV Station With These Few Modules

The Basic 3 Transmitting Modules (buy all 3 save $8) . . . $199



TXA5-5

PA5

FMA5

1. **TXA5-5 ATV EXCITER/MODULATOR ..... $89 del**
   Wired and tested module provides 80 mw to drive PA5 10 watt power amp. High/low power switch for normal 10 watts with PA5, or adjustable for high power amps such as Mirage D1010N. Accepts standard 1 volt composite video from color camera, VCR, computer, etc. Wideband modulator gives excellent color and high resolution. Built in sync expander. Draws 70 ma at 13.8 vdc. One crystal included, but 2 freq requires another crystal at $15. We stock 439.25, 434.0, & 426.25 mHz, other 70 cm freq may take 3 weeks. CA-1 on-carrier audio module add $30.

2. **PA5 10 WATT PEP ATV POWER MODULE .....$89 del**
   A Motorola MHW-710-2 is mounted on a heat sink with stripline PC board to give over 10 watts pep video when driven by the TXA5. 50 ohms in and out. Broadband, covers the entire 420-450 mHz 70 cm band with no tuning. Draws a little over 2 amps at 13.8 vdc reg.

3. **FMA5 AUDIO SUBCARRIER GENERATOR..... $29 del**
   Transmits broadcast standard sound with your picture. Accepts a low Z mic (100-600 ohms). also line level audio from VCRs, camera mics, computers, etc. Up to 1 v p-p drive to the TXA5, VM-2, or VM-4 modulators. Works with any transmitter with 5 mHz modulation bandwidth. Draws 20 ma from 13.8 vdc supply.

All modules can be run from a 3 amp 13.8 vdc regulated power supply. A good UHF T/R relay should be used, we stock the Magnacraft W120X-14 at $44 delivered. The modules should be mounted in an aluminum chassis or cabinet for heat sinking and shielding. See chapter 14 of 1983 ARRL Handbook.

420-450 mHz ATV RECEIVING DOWNCONVERTERS

TVC-2

TVC-2G

TVC-4

TVC-2 ATV DOWNCONVERTER .....$49 delivered
Wired and tested module connects between 70 cm antenna and TV set tuned to channel 2, 3, or 4. Varicap tunes the whole 420-450 mHz amateur band. Sensitive MRF901 preamp, stage digs out the weak ones and the hot carrier double balanced mixer resists intermods and overload. Requires +11 to 18 vdc at 20 ma.

TVC-2L more sensitive with NE64535 preamp stage ..... $59 del

TVC-2G most sensitive with GaAsFet (.5db NF) stage ..... $79 del
It can be mounted in the shack, but is designed for antenna mounting for best sensitivity (Besides low noise figure, you gain the feedline loss). Has extra double tuned bandpass filter to reject strong UHF TV stations.

DCB DOWNCONVERTER CONTROL BOX .....$59 del
Provides variable 10 to 18 vdc thru coax to antenna mounted downconverters such as TVC-2G and TVC-12G. Also has 15 db gain line amp to drive long lines or splitters. Ready to go, comes in same cabinet as TVC-4.

TVC-4 PACKAGED DOWNCONVERTER with AC supply...**$89 del**
Contains the TVC-2, 120 vac supply, ready to go. BNC antenna input and F connector TV output. Handy for ATV demos, or community TV systems outside of the USA. Size is 5.3 x 2.5 x 7 inches.

TVC-4L contains the more sensitive TVC-2L..... $99 del

***Attention clubs, groups and exporters ..... the following quantity discounts apply to one module ordered at one time and sent to one address: 5-24 10%, 25-49 15%, 50-99 20%, 100-up 25%.**

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KLM BROADBAND ANTENNAS FOR ATV

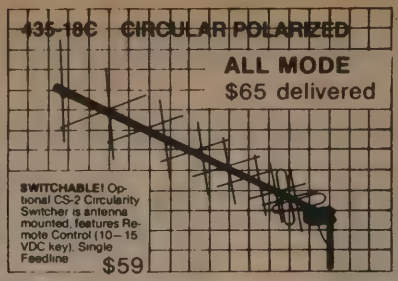
NEW!

440-27 — **14.5 DBD GAIN** $89 delivered

2N Dual splitter $39
4N Quad splitter $49

BANDWIDTH:	420-450 MHz	BOOM LENGTH:	12 ft
GAIN:	14.5 dBd	VSWR:	1.2:1
BEAMWIDTH:	36°	FEED IMP.:	50 ohm unbal
WT. (LBS.):	7.5	BALUN:	1:1, 2KW
MOUNT MAST DIA.:	Center 1½"		

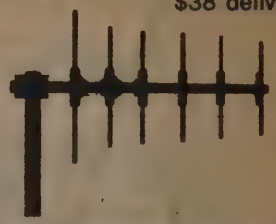
435-18C — **CIRCULAR POLARIZED** — **ALL MODE** $65 delivered



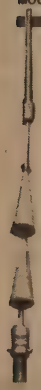
SWITCHABLE! Optional CS-2 Circularity Switcher is antenna mounted, features Remote Control (10–15 VDC key). Single Feedline $59

BANDWIDTH:	420-450 MHz	GAIN:	12 dBdc
BOOM LENGTH:	7.3 ft.	VSWR:	1.5:1
BEAMWIDTH:	44°	FEED IMP.:	50 ohm unbal
WT. (LBS.):	4.5	BALUN:	2-4:1, 1KW
MAST DIA.:	Con-Rear/1½"	Ellipticity:	3dB MAX.

440-6 — **PORTABLE** $38 delivered



BANDWIDTH:	420-470 MHz	BOOM LENGTH:	2
GAIN:	8 dBd	VSWR:	1.2
BEAMWIDTH:	60°	FEED IMP.:	50 ohm unbal
WT. (LBS.):	1.2	BALUN:	1:1, 2KW
MOUNT/MAST DIA.:	Rear/1½"		



LOW LOSS COAX. 50 ohm Saxton 8285 foam RG8 type ..... 100 ft roll . . . **$41**
Only 3.5 db/100' loss at 400 mHz. Tight 95% shield.

AEA 450 ISOPOLE OMNI GAIN ANTENNA ..... **$65** delive
High efficiency decoupling cones puts all the RF on the horizon where it counts. Great for local ATV round tables, port with the Kreepie Peepie system, public service, FM remote base and repeaters. Ready to connect to your coax N conne and 1¼" mast. Low wind loading and DC grounded for ruggedness.

1200 MHZ ATV SYSTEMS
How about full duplex a atv? There are 5 atv channels on the 23 CM band starting at 1241 mHz with 12 mHz spa available for repeater outputs, links, etc. Repeater output on this band with input on 70 CM lets you see your own v come back. Watch for our new KPA5-12 1 watt ATV transmitter to be out soon!

TVC-12G GaAsfet 23 CM DOWNCONVERTER **$89**
Sensitive GaAsfet remote varicap tuned 1215-1300 mHz to TV channels 7 or 8. Mount F9FT antenna to save feedline losses. Powered and tuned with 10-18 vdc thru coax DCB control box. DCB Control Box with IF amp **$59**

F9FT TONNA 23 Element YAGI ANTENNA **$49.50**
16.3 dbd measured gain, 5'10" boom, with N connector. Quad stacking frame an splitter **$150**

BUILD YOUR OWN ATV REPEATER WITH THESE BASIC MODULES

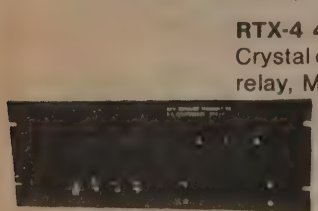
Filter

PSF438-ATV INTERDIGITAL VESTIGIAL SIDEBAND FILTER ..... **$132.50** p
5 mHz bandwidth for good color and sound but rejection for no desense. Copper plated 7 pole for typ 1.3 insertion loss.

MMC439-ATV CRYSTAL CONTROLLED DOWNCONVERTER ..... ch 3 IF . . . **$84.95** p
. . . 45.75 mHz IF $99.95 ppd. low noise MRF901. 30 db gain.

RCM-3 REPEATER CONTROL MODULE. Detects horiz sync to key up xmtr. Timers to key effects boar IDers, test pattern, etc. Bare P.C. Board . . . **$15** ppd ..... Wired & tested . . . **$49** p

RTX-4 40 WATT PEP ATV REPEATER TRANSMITTER ..... **$799** p
Crystal controlled on 421.25 mHz. 7" high 19" rack panel contains shielded KPA5 exciter, VOR video opera relay, Mirage D24 amp, and fan. Req. reg 13.8 vdc at 8 amps and 120 vac.



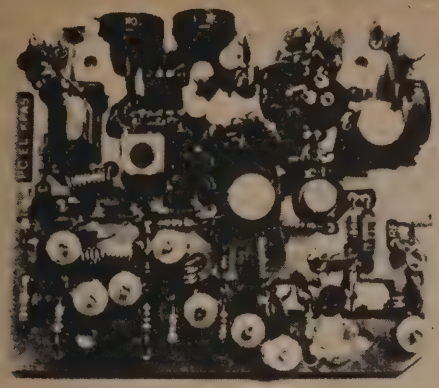
RTX-4

NEW!

BASIC ATV REPEATER SYSTEM

SEE Chapt. 11 of "EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT AMATEUR TELEVISION" book for complete repeater info . . . adding special effects, mixing two meters, getting rid of desense and interferance from other transmitters at the same site, and special considerations with video operation.

THE "KREEPIE PEEPIE" ATV TRANSMITTER IS HERE!



KPA5 1 WATT ATV TRANSMITTER BOARD FEATURES:

★ 1 watt pep minimum RF output on sync tip.

★ Full color and sound on one small 3.25 x 4" board.

★ Composite video input from camera, VCR, etc.

★ Runs on external 13.8 vdc at 300 ma supply or battery.

★ Wired and tested board covers 421 to 439 mHz.

★ Supplied with one xtal on 426.25, 434.0, or 439.25 mHz but capable of 2 freq operation with the addition of 2nd xtal (add $15). Other 70cm freq. available on special order.

★ Mic input from a low Z dynamic and line level audio input found in most portable color cameras, VCRs, or home computers provided.

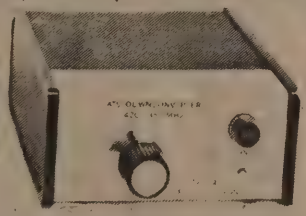
★ Schematic and application notes supplied for typical external connections, packaging, and system operation.

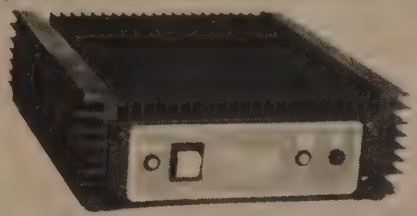
★ Price delivered via UPS surface in the USA is only **$159.** Technician class amateur license or higher required for purchase and operation.

DO SOME OF THESE APPLICATIONS INTRIGUE YOU?

1. PORTABLE CORDLESS TV CAMERA. No heavy VCR to lug around or cable length limitation. You can even use your home VCR rather than a portapak. Now you can creep around and peep thru your camera more easily. Gives good pictures up to a mile with simple whip, and 40 miles using beams in flat terrain.
2. MOBILE OR PORTABLE ATV for public service events such as races, parades, marathons, etc. A Mirage D24 40 watt amp can be added for greater mobile coverage or base operation. Mount in an airplane for CAP and rescue searches for an eye in the sky.
3. REMOTE CONTROL OF R/C AIRPLANES or ROBOTS. Fly with a camera in the nose to control as if you are in the plane. Likewise a robot can now be out of site of the op- tor.
4. REPEATER SITE SECURITY OR COMPUTER VIDEO DISPLAY. Turn on thru your repeater a camera at the site to see the area, weather, read meters, or if a computer is used, show status, play games, etc. by remote control. With all the new technology using TV displays, it is natural for hams to adapt these new products to transmission over the air. What applications come to your mind?

WHAT IS REQUIRED FOR A COMPLETE OPERATION SYSTEM? A TV set with a TVC-2 or TVC-4 420-450 mHz to channel 3 downconverter, 70 cm antenna, and coax cable to receive. Package up the KPA5, add 12 to 14 vdc, antenna, and any tv camera, VCR, or computer with a composite video output. Simple, eh?





ACCESSORIES:

Downconverter: TVC-2 wired & tested board $49
Varicap tuned. Requires +11 to +18 vdc at 20 ma.
TVC-4 (TVC-2 in cabinet with ac supply $89
more sensitive "L" versions with NE64535 preamp stage add $10.

Mirage D24 1 in / 40 watts out all mode amp. $179
450 ISOPOLE omni gain 70cm antenna $65
KLM 440-6 8 dbd gain 60° beamwidth antenna $38
KLM 440-27 14.5 dbd gain broadband 70cm antenna ... $89
100' roll Saxton 8285 50 ohm low loss coax $41
VOR Video Operated Relay board $25

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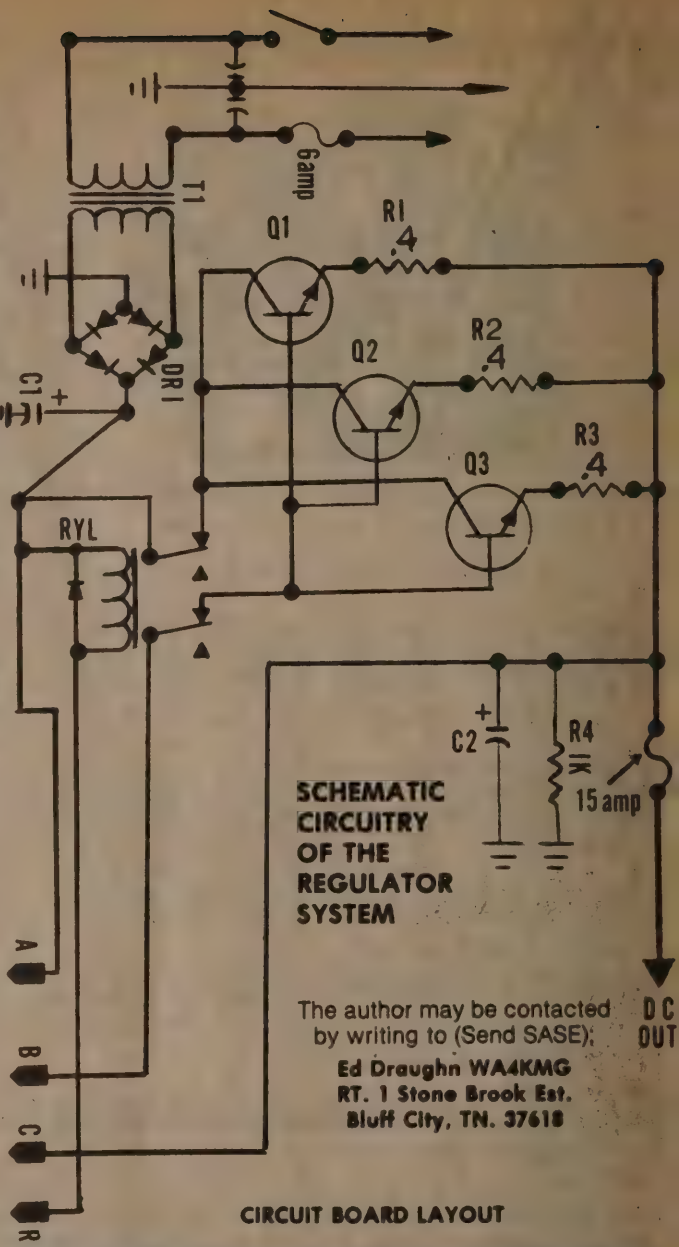
PROTECT YOUR EXPENSIVE EQUIPMENT WITH A WA4KMG "SMART" REGULATOR!

POWER SUPPLY ADAPTOR AIDE

Almost everytime I turn the radio on, I hear someone talking about their 12 volt power supply that just gave up the ghost and wiped out some very expensive equipment. This wipe out happens most of the time when one of those pass transistors takes a notion to let go as a result of having been overworked by too much current draw. It then dumps too much voltage on your equipment. As I have learned from past experience, this can and will happen, so don't depend on those output fuses to work. They only work on "OVER CURRENT", not "OVER VOLTAGE". THINK ABOUT THAT FOR AWHILE. It sure makes your blood pressure rise when your radios and all those nice little gadgets you've spent hours building go up in smoke, doesn't it? Well, I decided I was going to take a crack at my own design. Of course with some designs borrowed here and there, with burned fingers, several feet of wire, solder, parts and P.C. Board, the pictured regulated/over voltage protected power supply emerged. The supply is very simple and straightforward. Who needs those bells and whistles? All I want to do is protect my equipment. Of course meters may be added if you want. The transformer, bridge rectifier, 2 pole relay and pass transistors of course should be selected according to your current producing requirements, or use the schematic I have enclosed. With a good heat sink it will handle 13 amps. At 13.6 volts all day long, Nice, huh? The Brain or Regulator/Over-Voltage board is quite simple also. (Fullsize layout shown). Everything needed can be purchased from your local Radio Shack or dug out of the ole junk box. After you get the transformer and all othe other stuff mounted in whatever encloser you use and parts soldered on the Regulator Board, hook up points A + B on the Board, turn the 5K Volt ADJ. Pot while monitoring voltage at point B. I set mine at 15 Volts to start with. Hook up points R + C, turn the 50K Volt trip pot until RYL throws in. The last adjustment sets the Over Voltage Point. Then monitor voltage at the Power Supply Output and set the 5K Volt adj. pot for 13.6 volts at the output... Move the output voltage up and down several times to make sure everything is working o.k.. HINT: Overvoltage protection will not reset unless voltage is removed from regulator or drops to near 0 volts. PARTS LIST FOR POWER SUPPLY: Regulator/Over Voltage Board; (1) LM317 Regulator IC RS#276-1777. (1) MC3423 Over Voltage Sensor RS#276-1717. (1) 200 Volt SCR RS#276-1067. (1) 8 Pin Chip Socket for MC3423. (1) 10pf 25 volt Elect Cap. Pc Mount. (1) .1pf 50 volt Ceramic Cap. (1) 5K 1.4 watt Trim Pot Pc Mount Volt Adj. (1) 270 ohm 1.4 watt Carbon Resistor. (3) 1N4002 Diode. (1) 1pf 50 volt Tatalum Cap. (1) 50K 1/4 watt Trim Pot Pc Mount Volt Trip. (1) 5K 1.4 watt Carbon Resistor. (1) 47 ohm 1/2 watt Carbon Resistor and (1) .01 pf 50 volt Ceramic Disc Cap. MAIN CHASSIS PARTS: (1) Power Transformer 120 volt primary 18-24 volt secondary. (1) 25 Amp 200 piv Bridge. (1) 25K Mfd 75 volt Filter Cap. (1) 24 volt coil 2pst Relay Contact Suitable for Current Requirements. (3) 2N3055 NPN Pass Transistors. (3) .4 ohm 5-10 watt Emitter Resistors. (1) 1K Mfd 50 volt Filter Cap. (1) 1K 5 watt Resistor (output load) and (1) Heat Sink.

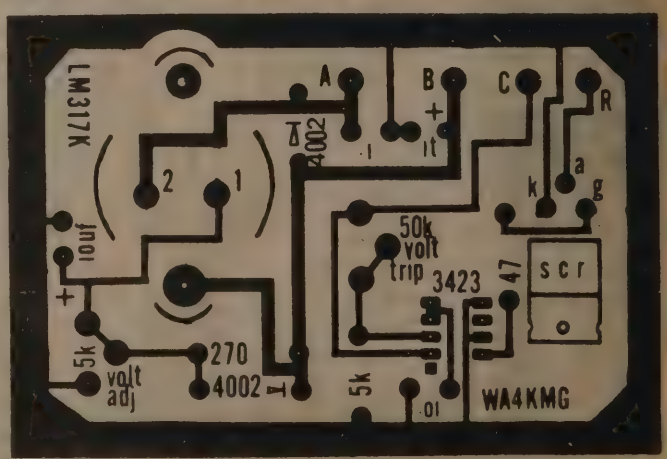


SCHEMATIC CIRCUITRY OF THE REGULATOR SYSTEM

The author may be contacted by writing to (Send SASE):

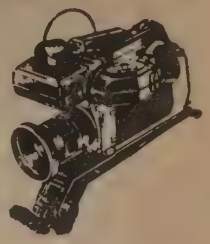
Ed Draughn WA4KMG
RT. 1 Stone Brook Est.
Bluff City, TN. 37618

CIRCUIT BOARD LAYOUT



TUNE IN THE WORLD OF HAM-TV

BEST FSTV-DX PHOTOS BY WA9INM!

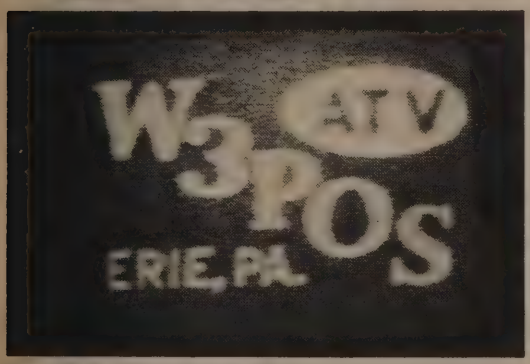


The pictures of W9ZIH and WB9LWP are in color but reproduced here in black/white

The 1984 summer ATV-DX season is over. We are moving into the fall and winter months and with it (for those who watch for it), good chances for FSTV-DX openings or extended ground wave conditions. Results are now coming in from the August 1984 NA FSTV-DX Contest are scores look to be at a record high! We have been honoring these DX'ing "A5/USATVS" members by publishing their captured photos in the USATVS Journal. This month's photographs are from Amateur TV Station WA9INM operated by Wayne D. Zehner Jr. of 6386 Hwy 17, Plymouth, Indiana (46563). Wayne sent in some great looking COLOR photos of a few of his many long-distance ATV contacts that occurred on August 5th in 1982. Wayne's best reported ATV-DX is with another popular long-distance Ham-TV DX'er, Ed Gubish W3POS in Erie, PA-a distance of over 400 miles! His best DX Color has come from W9ZIH near Chicago. DIG OUT THOSE ATV-DX PICTURES & SEND THEM TO A5 FOR PUBLISHMENT! They will be carefully handled, screened by our own darkroom facility and returned to you, unharmed, as soon as possible. Please mail in protected envelopes and mark clearly on the outside; "PHOTOS ENCLOSED". Thanks Wayne for sharing with us the results of one of your most cherished moments in your ATV hobby!

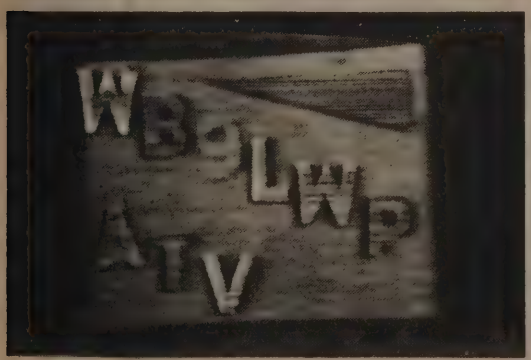
Ed Gubish W3POS Waves "hello" to WA9INM - 400 miles

Ron Stefanskie W9ZIH near Chicago - 90 miles



The famous "W3POS Callsign" Recognized in the midwest

W9ZIH shows a picture of his GP6A camera



Closer video from Carl Gropp in Westville (35 miles)

The famous color turtle call card from W9ZIH

CATV BOOM DIRECT RESULT OF "AMATEUR" EXPERIMENTS!

A LOOK AT A BASIC CATV LAYOUT

Transmitting Uplink Dish At S.C. Educational TV Network

Why should "A5/USATVS Members" be interested in Commercial Satellite TV, much less Cable-TV? The answer to that question is twofold; 1. "A5" was one of the first electronic publications to print material for the hobbyist on TVRO communications (5 years ahead of Wayne Green's 73 Magazine!). We knew it would be the experimenting HAM-TV'er who would tinker with those "strange signals from outter space" and tinker is what Bob Cooper and a number of other "A5" subscribers did! The rest is history. 2. ATV Microwave Communications is just beginning. We are just entering the dream stages of having a workable geosynchronous TV relaying satellite up their to use for continental and/or worldwide DX contacts. To dream intelligently, one must have a basic understanding of Satellite TV theory. Our multi-part "A5" WA6RDA "ALL ABOARD TVRO" series fulfilled much of the economical unique building projects (Complete Reprint Pkg. available-see ESF Copy Service AD). Satellite TV communications is responsible for much of the current growth in the CATV industry (formally know as "Community Television). Let's take a look at how a simple CATV system is setup operates.

The advent of satellite communications has captured the interest and imagination of nearly everyone associated with wide-band communications. Virtually the whole world-from the busiest urban center to the most remote islands- can be interconnected by satellite communications networks capable of providing economical and reliable transmission of communications signals, including voice, teletype, data, and video. Although satellite communications had its commercial beginning with the CATV industry, it has now become practical and economical for stand-alone Mini-Cable Systems in lodging, multihousing, private business, health, and educational networks.

NETWORK OVERVIEW: Commercial satellite communications is based on the use of geosynchronous satellites. The geosynchronous orbit is the circular orbit at a height of about 35,800 km (22,250 miles) above the equator. A satellite in this orrbit appears fixed in space to an earth station on the ground.

In a cable network the satellite receives its input from a transmitting earth station on what is called an uplink frequency of 6GHz. The bandwidth of this frequency is 500MHz and is divided into 12 or 24 individual channels. (The 24 channels are made available by alternating the polarization of the transmitted signal; one channel being vertically polarized and the next channel being horizontallly polarized). The satellite has one transponder dedicated to reception and retransmission for each channel. (A transponder is a receiver-transmitter combination which receives a signal on one frequency and retransmits it at a different frequency). Its retransmitted output is sent to a receiving earth station on a downlink of 4GHz. A simple sketch of these links is shown in figure A-1.

Most cable networks are capable of receiving TV signals from a satellite as well as off-air reception from local TV stations. All such networks are comprised of equipment designated in three categories: Earth Station Equipment, Headend Equipment, and Distribution Equipment. A simplified block diagram of a typical cable network is shown in figure A-2, and the following paragraphs describe the function of each equipment category.

EARTH STATION EQUIPMENT: The basic earth station equipment consists of a satellite receiving antenna, a low noise amplifier (LNA) or low noise converter (LNC), a power divider, one or more receivers, and interconnecting cables.

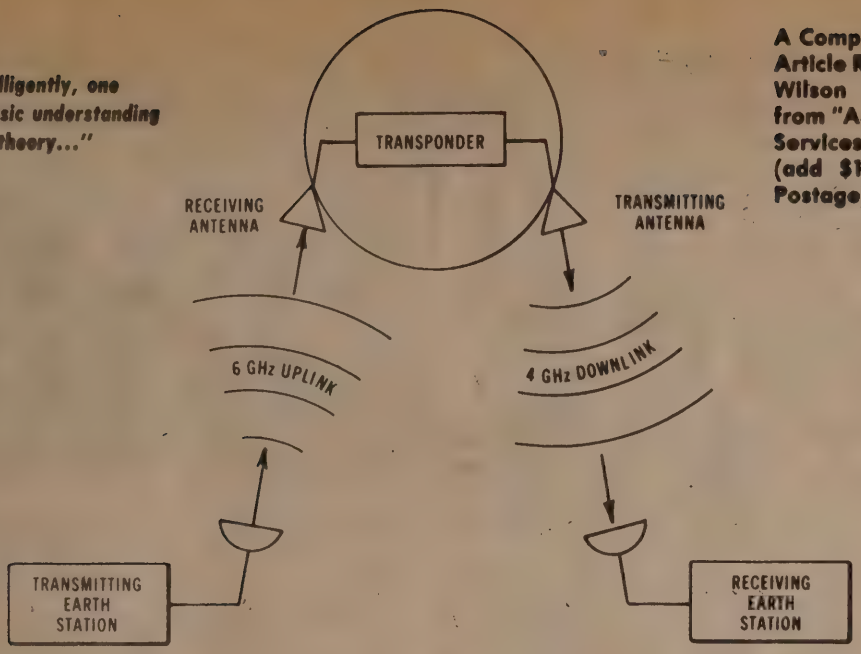
The LNA, generally attached directly to the antenna, accepts the incoming band of signals received by the antenna and amplifies these signals for input to the power divider. (An LNC not only amplifies, but downconverts the entire basd to UHF frequencies; this allows use of a low cost receiver). The power divider is used to provide input signals to several receivers. The power divider is connected to the LNA or LNC by coaxial cable, and may be located several hundred feet from the antenna.

The receiver accepts the satellite signal of the transponder for which it is tuned, downconverts and demodulates the input to the baseband video and audio signals. The resulting baseband signals are fed to the modulator, which is part of the headend equiment. a separate receiver and modulator is required for each satellite channel to be carried on the system.

HEADEND EQUIPMENT: The headend equipment has two functional areas: one portion is associated with earth station equipment for satellite reception and consists of a modulator. The other portion is associated with local off-air reception and consists of conventional antennas, signal splitters, preamplifiers, and signal processors. Both functional areas feed a common network combiner.

"To dream intelligently, one must have a basic understanding of Satellite-TV theory..."

A Complete 64 Page "TVRO" A5 Article Reprint Booklet by Gerad Wilson WA6RDA is available from "A5/USATVS" Membership Services Dept. "For just $5.00 (add $1.00 for 1st class U.S. Postage). A5BS #107



Send Your Photos of your TVRO Dish Antenna System to "A5"!

Figure A-1. Simplified Block Diagram of a 6/4 GHz Satellite Communications Link. (Only one of the 12 or 24 transponders that make up a typical satellite is shown.)

The modulator takes the baseband video and audio signals from the associated earth station receiver and modulates each to produce a composite IF signal. The composite IF is then converted to an rf signal at the particular CATV channel frequency and fed to a network combiner. The combiner produces one trunk output from multiple rf source inputs.

For local off-air reception, conventional antennas are used. The number of antennas used depends upon how many local channels you desire to receive, and the proximity of each station's transitter antenna to your antenna.

When two local stations are within the reception pattern (beamwidth) of your antenna and the resultant two signal levels are acceptable, a single antenna can be used to furnish the headend with the two channels. In such a case, a signal splitter is used on the antenna output and each line then feeds a signal processor. Where signals are weak at the antenna (antenna array) output, a preamplifier is required. The preamplifier increases the level of the weak signal with minimum noise addition and generally provides some degree of attenuation to undesired signals. The preamplifier output then feeds a signal processor.

Single channel antennas with sufficient output signal level are fed directly to an associated signal processor. A separate signal processor is required for each off-air channel to be tuned.

The signal processor performs functions similar to that of a receiver and modulator used in satellite reception. Its output is fixed to the desired CATV channel and is fed to the network combiner.

A network combiner is a unit that takes several CATV channel signal sources from individual processor and modulators and combines them for output distribution over a single cable and yet allows each signal source to retain its individual CATV channel identity.

DISTRIBUTION EQUIPMENT: The distribution equipment is used to distribute the combined television signals throughout the final legs of the cable network. The equipment includes power supplies, trunk amplifiers, splitters, bridging amplifiers, taps, set-top converters, and finally the cable-user's television receiver.

The trunk amplifiers are spaced along the cable route to equalize and amplify the cable signals to compensate for signal attenuation. Each trunk amplifier would have a bridging amplifier from which short feeder lines would emanate. Trunk and feeder paths branch to route signal to all subscribers. Power supplies are placed along the route so that amplifiers can receive power directly from the cable. Taps along the feeder lines feed individual set-top converters and television receivers.

The cable user would then select the desired cable channel for viewing by tuning the set-top converter.

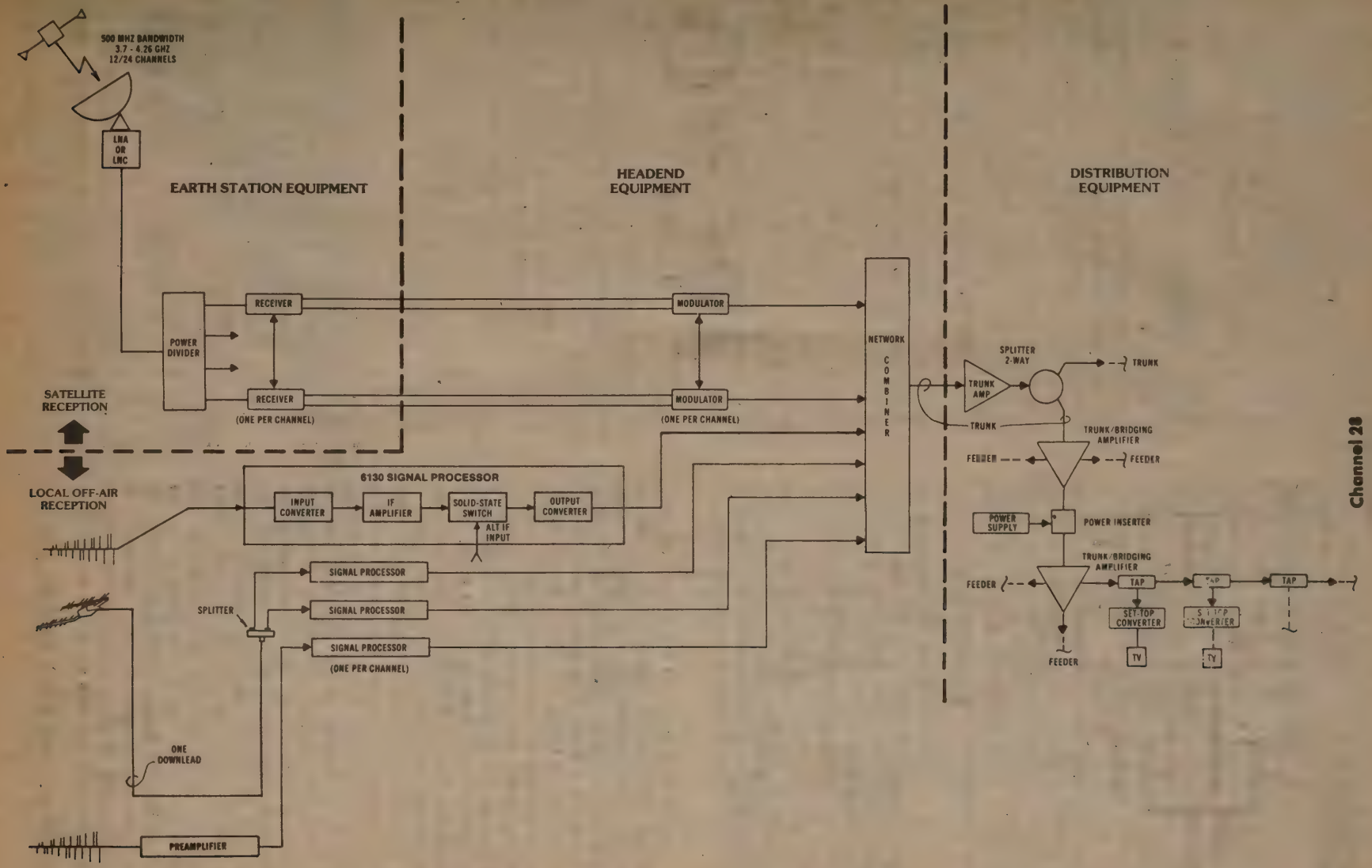
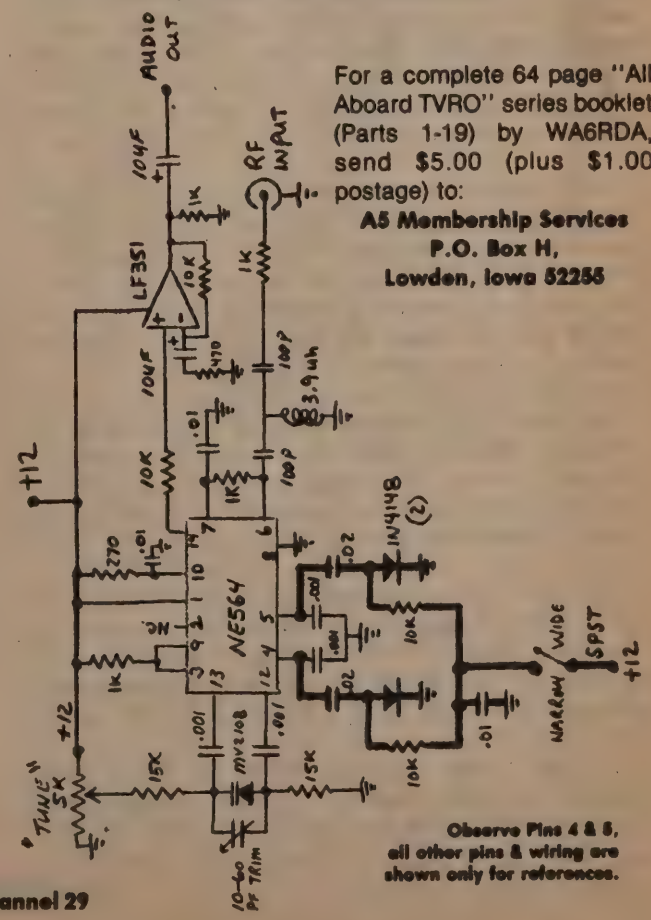


FIGURE A-2, A Simplified Block Diagram of a Cable-TV Network

ALL ABOARD TVRO #20 - WA6RDA

If you own one of the many TVRO receivers that utilize a NE564 PLL audio circuit (such as SATTEC), or if you built the similar unit published in A5 a while back, then look closely at this modification. In this circuit pins 4 and 5 are part of the loop filter that determines th bandwidth according to the capacitor valus selected. Most circuits utilize a pair of .001 to set the bandwidth wide enough to capture full fidelity, but in some instances the transponder may be transmitting narrow band audio, and then you may have to contend with additional noise captured by the receiver. With this modification, a pair of .02uf monolithic caps are switched on by a pair of diodes, which narrows the loop circuit bandwidth, and cleans up the noise dramaticly, especially on the sub audio music channels such as Musak or Seeburg.

Construction Hints: You should be able to "suspend" the components on the existing circuitry, keeping leads short, and be certain to install the circuitry, keeping leads short, and be certain to install the .01 bypass cap on the 10k resistor just as a good construction practice. If you have a stereo version utilizing a pair of these 564's, then switch all four diodes on sinontaniously. The circuit shown here will tune from 5 to 7.5 mhz. and the MV2108 may be substituted by other vari-caps such as the Motorola MV2209. It is not necessary that your circuit be the same as the one shown, but be certain that pins 4 and 5 are the same, so the results will be correct.



For a complete 64 page "All Aboard TVRO" series booklet (Parts 1-19) by WA6RDA, send $5.00 (plus $1.00 postage) to:

A5 Membership Services
P.O. Box H,
Lowden, Iowa 52255

KSG TECHNOLOGIES
900 5th Way
Pleasant Grove, AL 35127

KANTRONICS/ABRAMS SOFTWARE ADAPTER

by Steve Gilbert WD4EKN

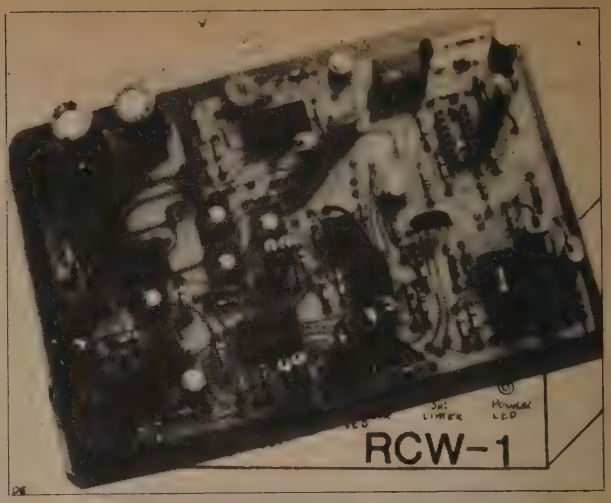
Adapting the Kantronics Terminal Unit to work with the Abrams RTTYCW software is really an easy task. It takes a "box" that sits between the Color Computer and the Kantronics TU. The Kantronics unit has some control logic signals that are handled in an unusual way when using the Kantronics Hamsoft software. One of the things Clay left out of his program that Hamsoft put in was a PTT or transmit-receive control function. Clay, why not release a new version of your wonderful program with the cassette relay used as a PTT function???

With the anomaly mentioned above, switching the PTT will have to be done manually when using the Abrams software. A switch is provided for this on the "box". In addition, both the box and the Kantronics TU will have to be switched between CW and RTTY. So yes, there are some small operational disadvantages, but there are some advantages, too. The RFI is not as bad with the Abrams package since it uses the RS232 line. Those running the prototypes have reported that the Kantronics seem to be easier to tune on the Abrams than when on the Hamsoft. There is less danger of harm to your computer because the ram-port is not used.

The circuitry to adapt the two is below. No program modification is required. Power is derived from the Kantronics unit. The Kantronics unit is equipped with a 6-pin DIN socket on the back for interface to the "box". The back panel is drilled or punched and the DIN socket is mounted above the "power" and "audio in" jacks. The 5 outer pins in a circle on the DIN socket are connected to a 5 wire ribbon cable inside the TU. The other end of the ribbon cable is tack-soldered to the back-side studs of the "computer" jack. The center pin of the DIN socket is connected to the TU's unregulated power source at the POSITIVE side of electrolytic capacitor C5. Refer to the Kantronics manual for locating this part.

With the modification done this way, the adapter "box" can be plugged between the computer and the TU when running the Abrams software. The Hamsoft software can still be used by plugging it in the same as always, with the adapter box unplugged. Connections to the ham rigs are the same in both cases.

The RCW-1 is made specifically for the TRS80* COLOR COMPUTER (or Color Computer II) and CLAY ABRAMS software package for RTTY and CW (software not included). It will work with the RS-232 or TTL interface on any computer with software provided by the user.



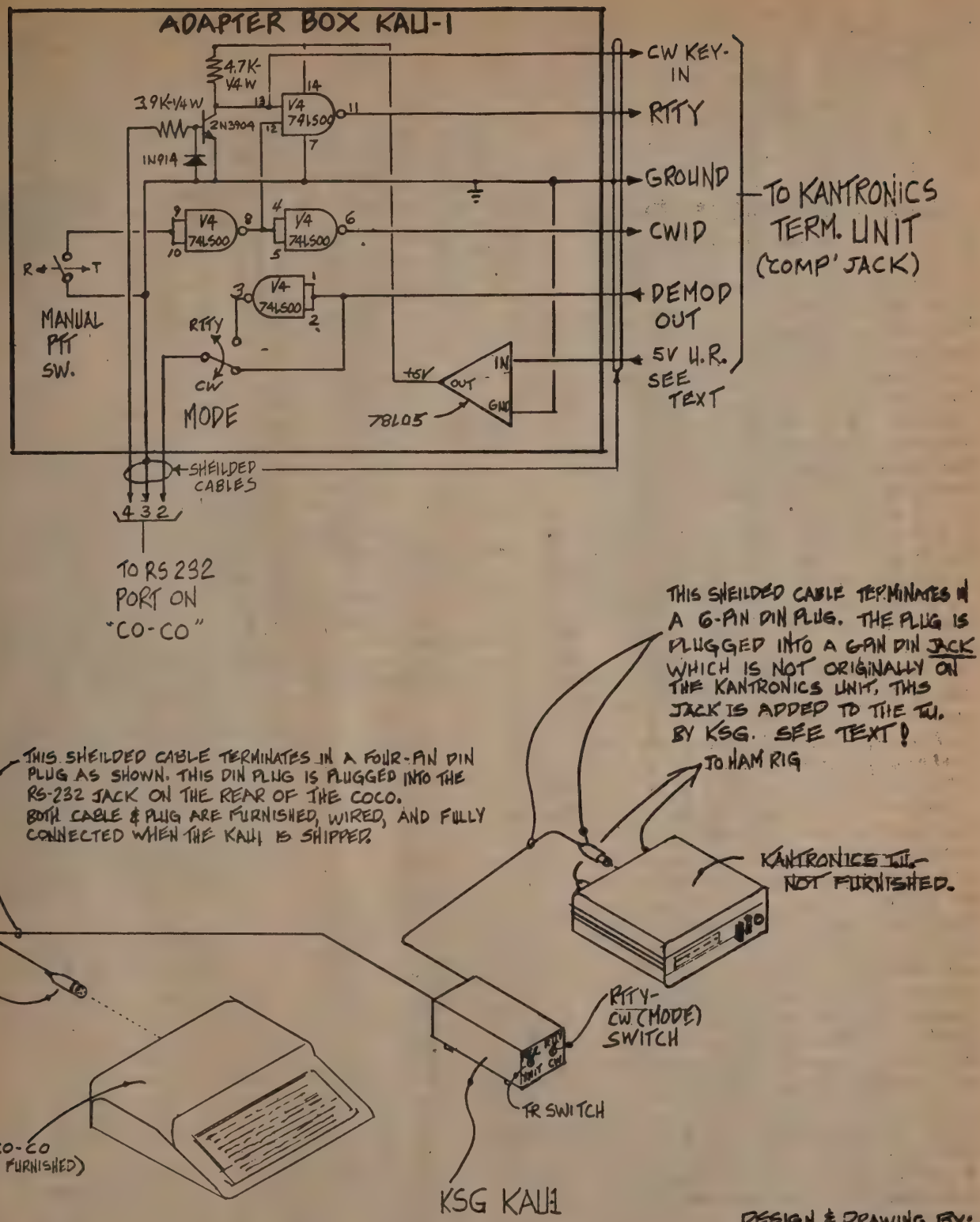
THE RCW-1 HAM INTERFACE

One 4" x 6" circuit board contains high performance electronics for the following functions: (1) The power supply for all sections. (2) The CW demodulator using the 556's. (3) A CW relay keyer circuit. (4) An RTTY AFSK generator circuit. (5) A high-quality dual (both mark and space) active filter/slicer-type RTTY demodulator. (6) An optional at no extra cost on-board TTL to RS232 level converter to make all input and output compatible with any computer running an RS232 interface (software still required, not furnished). The RCW-1 Circuit board is high-quality FR-4 Glass Epoxy, fully etched, drilled, and tin plated.

A complete, computer-generated documentation is included showing: (1) component layout, jumper layouts. (2) Complete schematics and theory of operation. (3) Explanatory text on building, testing and aligning. (4) Parts lists by section and composite. (5) Updates and technical help. (6) Engineering Drawings for physical depiction. (7) Interconnection Drawings. Available Three Ways: (1) The circuit board only (RCW-1 $20.00 postpaid). (2) Complete KIT (RCW-1K, $125.00 postpaid). (3) Completely assembled, working, and tested unit (RCW1AT, $175.00 postpaid). The construction cost estimates only $50.00 to $80.00, but competes with anything on the market, including units three times its cost. You won't be disappointed with the performance! The Circuit Board is fully warranted against defects in materials and workmanship. Kits and fully assembled units carry full 90 day warranty.

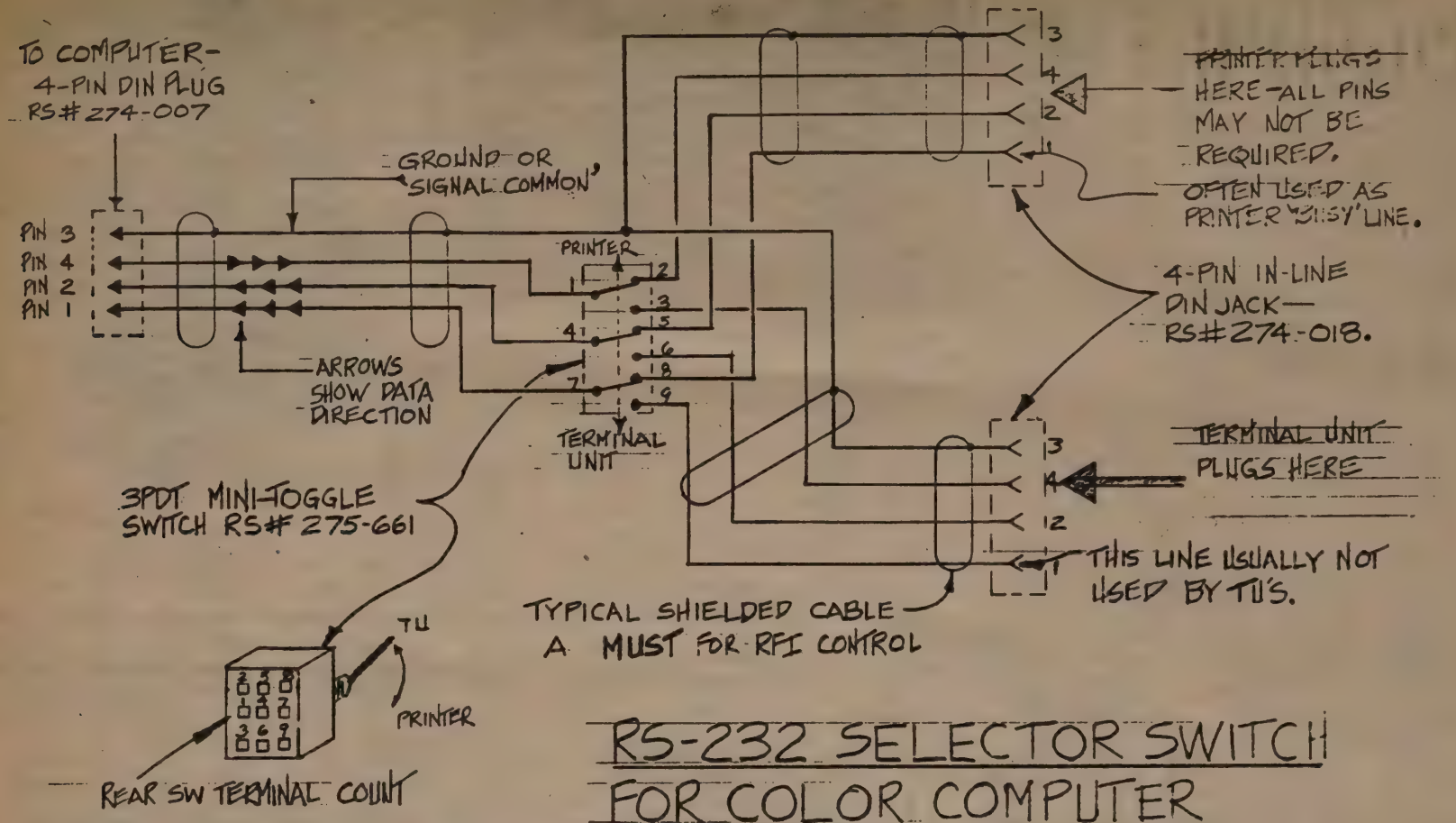
If you don't want to do this yourself, send us your TU and $35.00 and we will install the DIN unit and ship it and a fully assembled and tested adapter box back to you. Or, if you want to modify your own TU, send us $26.50 and we'll ship you a fully assembled adapter box with all other necessary parts and instructions. (An SASE brings our latest catalog on other TRS80C products).

Those of you with Kantronics TU's will find that the Abrams software makes that little TU come alive with reliable copy. Good Luck all AS/USATVS Members!
73's Steve Gilbert WD4EKN



DESIGN & DRAWING BY:
S.W. GILBERT, P.E.

KAU-1 CABLING ARRANGEMENT



RS-232 SELECTOR SWITCH FOR COLOR COMPUTER

NOTE: USE MULTIPOLE WAFER SWITCH AND ADDITIONAL JACKS FOR MORE THAN TWO DEVICE SELECTIONS.

SWG KSG TECHNOLOGIES

Channel 32

COMING ATTRACTIONS!

"A5" SSTV SPECIAL ARTICLE 4-PART SERIES BY CLAY ABRAMS K6AEP ON INTERFACING THE NEW ROBOT 1200 CONVERTER TO IBM PC COMPUTER!

PART ONE
November Vol. 14 #11
- Background HI-Res.
- Hardware Requirements

PART TWO
December Vol. 14 #12
- Robot 1200 Commands
- Interfacing
- Interface Card Circuit

PART THREE
- The Program Actual 2440 Line Printout!

PART FOUR
- Parallel Port Operation
- Results

"STAY TUNED TO THIS CHANNEL!"

A5 ATV MAGAZINE "SHACK OF THE MONTH"

'84 Worlds Fair Station

W5LDH - SSTV

Phil Spencer
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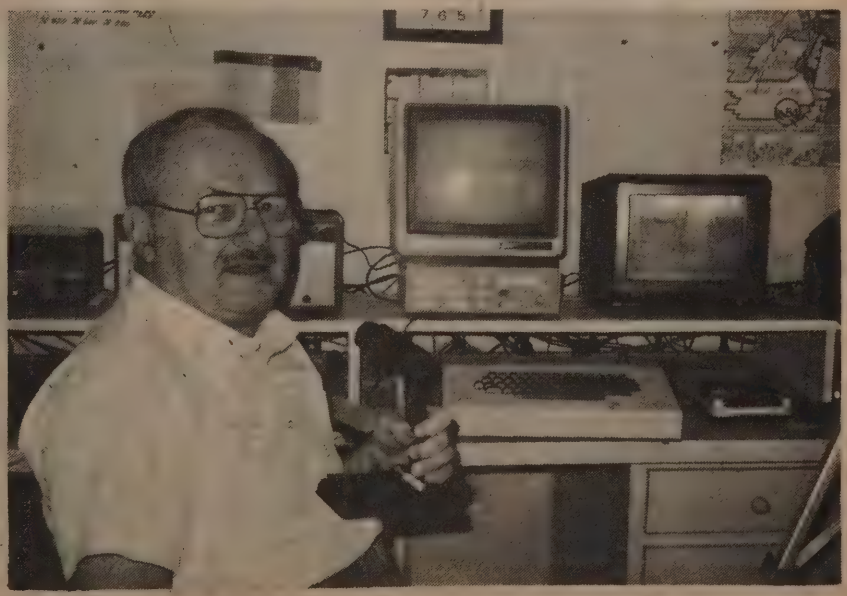
New Orleans, Louisana



Phil has enjoyed SSTV for many years and recently sent pictures from the LA. World's Fair Exposition in 14.230 Mhz. Here, he works K5WF using a loaned Robot 450C color SSTV converter & 800 C keyboard. Other gear includes a Collins KWM-380, CDE, Halicrafters Keyer and other equipment. Congratulations Phil and troops on a job well done!

-A5

VISIT THE WILD WEST
IN WALDRON, INDIANA

Popular SSTV'ER W9NTP and YL travael the world tracking adio, building churches and searching for Indian relics.

"Frontier Street" setting near the Miller home

The appreciation of past history is never so present as it is at the Don and Sue Miller farm-home located near Waldron, Indiana. "A5" visited Don and Sue in 1983, and it was certainly a "weekend to remember". As you drive up to the Miller farm, one first notices what appears to be the cowboy setting of "main street" in Dodge City, Kansas. A large "WYMAN RESEARCH Inc." main building gives the appearance of a like a western saloon watering hole, complete with breakable glass windows and swinging bar doors. There's a place to hitch your horse and enjoy the view from the large wooden floor porch deck. The "CAR BARN" looks like the local livery stable followed by an old school house to teach the kids and an old cabin home built back in 1843. But don't let the outward appearance of the western complex fool you. Inside the main building (saloon), one walks into a modernly styled, up to date, electronic production facility. A large reception/waiting area is adjacent to the main drafting design and electronic research facilities. Complete with their own chemical circuit board etching room and test bench room a large upstairs refernce library exists-all materials carefully filed and indexed (Yes, we even found a section of "A5's"). Tired after a long days travel to the WYMAN ranch by horse or stagecoach? Rest in comfort in a very accomodating bedroom/lounge facility also located in the main building.

Ah...but there's more!

Venturing downstairs (underground) however, revealed even more interesting construction! A couple large rooms are filled with some of the cleaned and restored ancient Indian and Stone Age relics. Everything from pottery, dishes, tools and trinkets-are laid out in beatiful wood shelving for the visitor to see.

Sue and Don Miller at their Waldron, Indiana home

BUT WHAT'S THIS? AN UNDERGROUND DOOR & TUNNEL TO THE MAIN WYMAN HOUSE! Walking the long corridor of twisted tunnel some 15-20 feet underground (all finished and well lighted with no need for air-conditioning), we walked into something which I have never before seen on any private residence; a complete, multi-room underground MUSEUM! Many beatiful enclosed glass case display of pottery, arrowheads, weapons, tools and other ancient artifacts.

The W9NTP/W9YL "hamshack" is historical as well as modern. Don never seems to sell anything with stored first SSTV cameras and converters, HF & FSTV equipment. Don & Sue knew each other as kids and have now been married for over 39 years. If you ever get the chance to visit the Miller ranch, do it. You'll never meet two finer and more interesting people on the earth. -WB8QCD

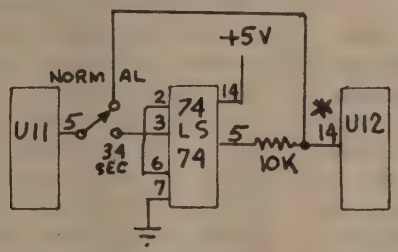
A small part of the large collection of Indian relics by the Millers

34 SECOND TRANSMIT MOD FOR INTERFACE SYSTEMS - ROBOT 400/3064C

by "A5" Technical Advisor Fred Sharp W8ASF
P.O. BOX 22277, Cleveland, Ohio 44122

This MOD is for the users of the Interface Systems Robot 400/3064C, three memory, high resolution scan converter. While this system is 128 pixels per line on 256 lines and not 256X256, the MOD does permit sending high resolution pictures in 34 seconds, for compatability with Microcraft, Voelker Wrasse and Robot 36 second video. The modification is simple and consists of making the horizontal line rate 132 MS(7.5 HZ) instead of the normal 66 MS(15 HZ). The MOD can be switched in and out as in my version, by the use of a SPDT switch.

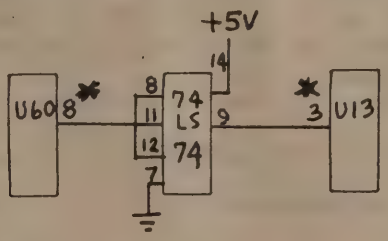
Locate U11(74LS107) on the 400 board. Solder a wire from U11 pin 5 to pin 3 of a 74LS74. Do not remove pin 5 from it's socket. Solder a jumper between pins 2 and 6 of the 74LS74 and connect pin 14 of the 74LS74 to +5vdc and pin 7 to ground. Solder a 10K resistor between it's pin 5 and U12(4046) pin 14. Pin 14 should be lifted from it's socket. THERE IT IS! Thats the whole MOD.



*=LIFTED PIN

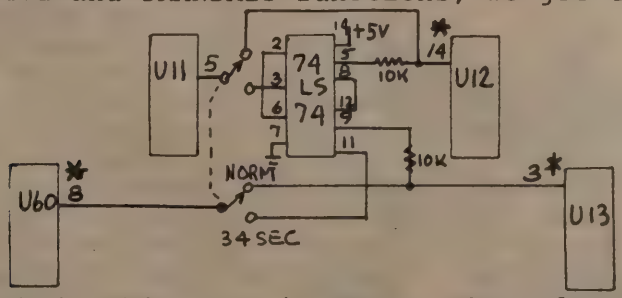
"Thanks Fred for sharing this with us!" WBOQCD

To use the MOD, set the 400/3064C, 128/256 switch to 256. Set the new SPST switch to 34 SEC and send your picture. To receive 34 second the old Howard McAfee 256 MOD can be used with the 128/256 switch set as above. The other half of the 74LS74 can be used instead as illustrated below:



Interested in other ROBOT 400 SSTV Mods? Send $5.00 (plus $1.00 postage) for special 48 page "A5" reprint booklet #110.
Membership Services
P.O. Box H,
Lowden, Iowa 52255

This will divide the receive horizontal line rate in half. Combining the RECEIVE and TRANSMIT functions, we get the following:



Tune-In to the "SSTV HI-RES." Group, weekday mornings (0900-1100 ET.) with K4TGC and W2WHK! 14.230 Mhz.

The switch in this case is DPDT. The only other refinement left would be to use an existing empty socket on the 400 board. (There are many) Just lift all the pins of the 74LS74, except pin 14 and pin 7. Wire to the lifted pins....

"A5" SSTV NEWS!

Microcraft Company Sold

The big news in the World of SSTV, is the selling of MICROCRAFT CORPORATION'S "Videoscan 1000" SSTV Converter system to NORTHERN INFORMATION TECHNOLOGY, INC. It is important to note that only the "Videoscan 1000" division has been sold-not the Microcraft Corporation itself. Dr. George Steber WB9LVI told "A5 News" that they will continue to manufacture and distribute their other line of Amateur products including the popular selling CODE-STAR Code Readers. The Videoscan 1000 SSTV Converter reached its popularity during 1982/83 as a specialty "HI-RES." SSTV Converter displaying 256X256 64 grey level resolution. It is considered as one of the best "HI-RES" B/W SSTV Converters in the world. "A5" has learned that Dr. Steber has been busy working (under contract) on the development of an extreme HI-RES. SSTV Converter for the military. Our bet, is that Amateur SSTV'ers haven't seen the last of WB9LVI products just yet.

In a letter to "A5" dated 22 August 1984, Dr. Steber writes; "Yes, we have sold all the rights and technology associated with our VS-1000 scan converter to Northern Information Technology, Inc. Current plans call for Microcraft to continue in business with specialized products such as our CODE*STAR and contract work. When I get some free time (Hi! Hi!) I'll take you up on your offer to write a short "thank you" article for A5." 73's George Steber WB9LVI.

New Sources for Mods

Many VIDEOSCAN 1000 HI-RES. owners assemble in the early morning hours on 14.230 Mhz. under the direction of W2WHK and W4TGC. The VIDEOSCAN 1000 units will still remain up to date as two other popular SSTV individuals are currently working on and developing modifications for COLOR SSTV. Don Miller W9NTP of Waldron, Indiana has a working HI-RES. COLOR system based on the VIDEOSCAN 1000 unit as does Sam Mormino WA7WOD of Tyler, Texas. It is unclear at this time, as to wether or not the VIDEOSCAN 1000 SSTV converter units will continue to be manufactured and distributed by the NIT Company. We would like to wish good luck to George & Gloria for their past contributions toward the advancement of the SSTV video hobby and there is no doubt that we will be hearing again from them with perhaps new products in the future.

Buy Wraase Products Direct

The SSTV/FAX products of Volker Wraase DL2RZ in Kiel, West Germany are now being distributed directly once again to U.S. Amateurs. A number of SC-422, SC-422A, SC-1 and FX-665 units were sold and distributed here in the U.S.A. by KW CONTROL SYSTEMS, INC. of New York in 1981/82 and later by INTERNATIONAL SALES & MARKETING of Lowden, Iowa. The marketing assistance on WRAASE products by both U.S. companies has helped to bring about the recognition of "top of the line" HI-RES. SSTV equipment to stateside video enthusiasts. Those interested in WRAASE SSTV/FAX equipment may contact DL2RZ directly by writing to; Volker Wraase Electronik, AM ZUSCHLAG 19, D-2067 REINFELD, West Germany (Telefon 0 45 33/44 55) (Telex 261109 wrael d).

Microcraft's Videoscan-1000 high-resolution SSTV converter.
Sold recently to Northern Information Techonolgy, Inc.

HF SSTV Net Needs Help!

Brooks Kendall W1JKF, Don Miller W9NTP and Sam Mormino WA7WOD continue to act as NET CONTROL stations for the regular Saturday afternoon SSTV NET on 14.230 Mhz. The SSTV Net is an open net for those who wish to exchange SSTV pictures and obtain or relay information pertaining to the SSTV visual mode. The net starts each Saturday afternoon at 2 pm. ET and usually runs for a couple hours. W1JKF is looking for Net Control station assistance. If you would be interested in helping out, please contact Brooks either on the net or at his home address; Richard Kendall W1JKF, 18 Stocker Street, Saugus, MASS. 01906.

Space Shuttle SSTV

The upcoming 1985 Space Shuttle flight of Amateur Tony England is still considering the possibility of having SSTV transmit capability. There has even been talk of a 2 Meter to 10 Meter SSTV type repeater installed on board. Owen Garriot W5DFU has been awarded another flight soon to come which opens the door once again to even more SSTV possibilities. Some SSTV cassette tapes (special size tapes) are being tested for possible use in the mission by some USA SSTV Amateurs. More on this unfolding story as it comes into us here at "A5".

IVCA Troubles

The apparent shuffling of the "International Visual Communications Association" (IVCA) leadership continues, as it has been announced that two well known SSTV'ers; Jack Gray W1REQ and Gerald Klatzko ZS6BTD are attempting to help get the organization back on course. Leadership of the SSTV based organization has been tossed around quite a bit lately after getting off to a good start with a well intentioned written program. After a poor turnout showing last September at a well publicized Chicago meeting (which was eventually canceled due to lack of interest and attendance as only 4 attended), it was decided to try again for support at the 1984 Dayton Hanvention. The IVCA hosts a regular Saturday morning SSTV HF Color Picture Net on 14.230 Mhz. "A5" has offerred "free publicity" support for the IVCA organization thru several of its member/representatives, but we have as of this date received no material. For more information on IVCA, contact Sam Mormino WA7WOD.

First Robot 1200C's Shipped!

ROBOT RESEARCH INC. of San Diego, California has released its first shipments to dealers of the long awaited ROBOT 1200C HI-RES. B/W COLOR SSTV Converters. Promised to be completed nearly a year ago, the first 1200 units began appearing on the 20 Meter SSTV airwaves in late August. Some of the first SSTV'ers to receive the high priced units were WB6QWC, WB0UNB, W4FAX, K6AEP and others. Most reports on operation of the units seemed very favorable with a few bugs reported by some in the use of high powered HF amplifers. Stay tuned for an "A5" SSTV Users Review forthcoming in a future issue. For more information on the ROBOT 1200C SSTV Converters, visit any ROBOT dealer or write for information to; ROBOT RESEARCH, INC., Attention Mr. Bob Rubesh, 7591 Convoy Court, San Diego, California 92111.

B.S.A. SSTV

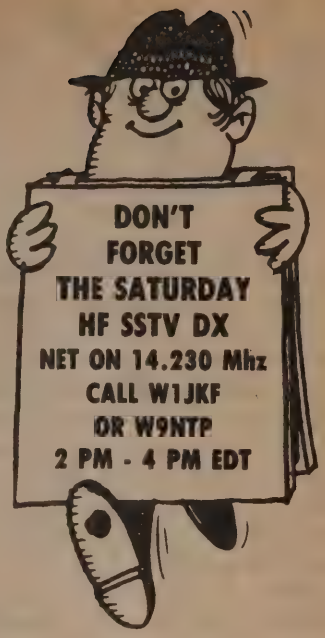
The dates for the 27th annual BOY SCOUTS "Jamboree on the air" (JOTA) is October 20-21. 1984. Thousands of Amateur Radio "Scout" stations are active each year around the world providing shortwave radio contacts and QSL's. Last year in 1983, over 300,000 Scouts in 100 countries took part. Calling frequencies are CW-3.590, 7.030, 14.070, 21.140 & 28.190 Mhz. Phone-3.940, 7.290, 14.290, 21.360 & 28.990 Mhz. RTTY, SSTV and ATV modes are also transmitted and received. SSTV contacts should be made on either 28.680 or 14.230 Mhz. Certificates, pocket patches and QSL Cards will be awarded. Special event cards may be ordered ahead of time for JOTA presentations. SSTV'ers QSL via; JOTA Coordinator; W2GND, 216 Maxwell Ave, Hightstown, New Jersey 08520.

"Your SSTV articles are worth a year's free-subscription to "A5"!

For a complete 46 page Robot 400 Mod. booklet (#110), send $5.00 (plus $1.00) to "A5"

MEMBERSHIP SERVICES
P.O. BOX H,
LOWDEN, IOWA 52255

The Hi-Res. SSTV Group meets daily from 9-11 a.m. E.T. - Call K4IEC or W2WHK on 14.230 MHz.



A5 ATV MAGAZINE!
"Your Journal for the latest in SSTV News and Events. . . ."

SSTV

OUR 1985 "A5" WORKED - ALL-STATE SSTV CONTEST WILL BE HELD OVER A ONE WEEK PERIOD JAN. 21-27th.!

CQ FAX-DX DE WOPHD CALLING!

Wally L. Lamb WOPHD
P.O. BOX 26,
Warren, Minnesota 56762

HF RIG + CHEAP UNITS ='s FUN! Japanese FAX Contact on OSCAR 10

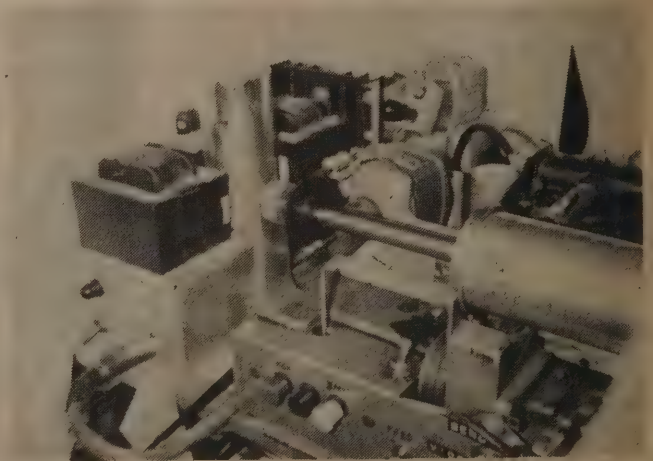
*A5 EDITOR'S NOTE-If there's one area in which Amateur visual mode communications is bound to see some fast growth and interest, it is in FAX! Today, interest in "true" HI-RES. SSTV (both B/W & Color) has been gaining in popularity. In reality, SSTV is fast approaching the thin boarder line between it and FAX. As SSTV picture times slow down with an increase in picture density and resolution, it is only a question of time before some stop calling it SSTV and begin to call it "FAX". Once SSTV'ers see actual quality "off the air" Facsimile mode hard or softcopy pictures, they see the limitations SSTV presents. One popular USA SSTV manufacturer has just released a new high priced model HI-RES Converter that seems to be working out well according to first reports. A comparitively priced German SSTV Converter offers FAX transmit/receive features as well with cross-moding capabilities. Some disbelievers, are still shaking their heads and saying that FAX is dead, but I doubt if they have turned on their HF rigs lately and listened for the present slower toned signals.

One USATVS Member, has been transmitting and receiving FAX signals for many years now. He was delighted to see the A4 mode go HF and has been a regular participant (and Net Control) on the "US FAX NET" on Sunday afternoons at 14.245 Mhz. His name is Wally Lamb W0PHD. He authored a Western Union AFSK DESKFAX article recently in QST Magazine that brought about a resurgence in the old Model 70 units to newcomers. We ran into Wally at the July Central States VHF Conference in Cedar Rapids, Iowa and in a well hidden portion of a back Hotel parking lot, exchanged FAX pictures and information (maybe he was the guy who kept a supply of "A5's" on a back table?). We managed to beg Wally out of some of his prized FAX QSL picture prints received on his WU Deskfax 70. Now keep one thing in mind; these are photos reproduced on a machine that was manufactured nearly 30 years ago. They are cheap and available at most hamfests. The pictures do not do justice to the finer detailed and more recent commercial surplus equipment such as ALDEN, MUIRHEAD, QUIP, PANA and others. Some of the quality is lost in reprinting these pictures and through reduction. Wally has worked a number of FAX-DX countries as well as alot of USA contacts. His record (and perhaps the world's?) on two meter FAX was over 420 miles on September 5th, 1981. Jerry is a sought after contact and achieves "pileup" status when working Japanese FAX enthusiasts. His callsign is published almost monthly in the CQ-JA Magazine "FAX Column". Catch Jerry on 14.245 Mhz. or on 15 Meters! -WB8QCD

Jerry writes...

Here is what has been happening on FAX from this QTH. On this date (July 3rd, 84) at 12:00 UTC, I called CQ FAX on OSCAR 10 Orbit #794. The Satellite was a latitude 23 degrees north and 150 degrees west. Much to my pleasure, I copied the following from TOSI, JH2ESW! It appears that the international standard speed for Amateur FAX is to rotate the drum at 120 RPM instead of the DESKFAX speed of 180 RPM. Therefore, I had to make up a "speed convertor". Using an old PA system purchased for a few bucks at a local hamfest, I salvaged a burned output transformer with a rewired high voltage power transformer I had in the junk box. The high voltage winding became the secondary drive as the primary and the 117 volt winding became the secondary to drive the drum and feed motors. It takes about 25 watts to turn these two motors. I then drive the PA amplifier with a stable sine wave with the generator set at 40 Mhz. and dividing it down to 40 hz. with some handy 7490's. A further mod of a 4000 Khz. xtal oscillator drives the count down chain and becomes more stable than the RF generator. WA9HCZ built up a very neat frequency convertor for his DESKFAX unit using transistors. I hope the pictures speak for themselves. Most of the Japanese FAX'ers don't speak very much English including TOSI, but who cares when you get good pictures! 73's de W0PHD.

For A "FAX" Article "A5" Reprint Booklet (#105), Send $5.00 (plus $1.00 postage) to; ESF Copy Service, 4011 Clearview Dr., Cedar Falls, Iowa 50613 (see ad)



PA Transformer Motor Control Drive Unit On WOPHD WU Deskfax

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JA1BHJ

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To Radio WA9HCZ

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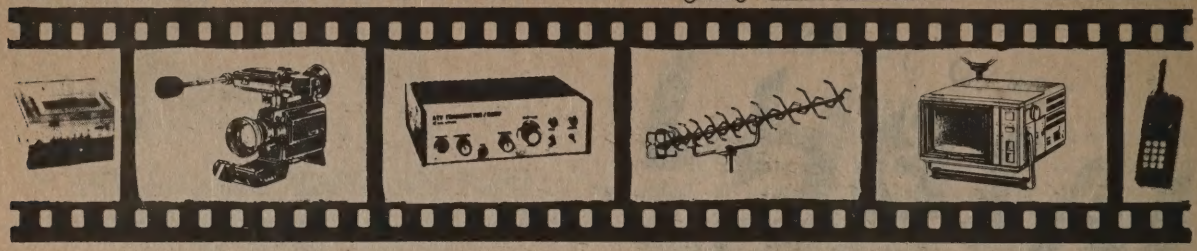

FOR SALE: ROBOT Model 70 Monitor, ROBOT Model 80 Camera and ROBOT 450C. Contact; Joseph Mullan W3RLR 217 Northway, Baltimore, MD. 21218 or call 301-467-3500 (Home).

HELP- I need an instruction manual and/or schematic for Panasonic video monitor, Model TR-930 (9" B&W). Marvin Phillips - Amateur Radio W3YAE 8034 Ball Road, Frederick, MD. 21701.

WANTED- Operation/SetUp Manual and Schematic for a GPL Precision 1000 Model Video Camera and a Manual for a MARKA-SWEEP Model Video 50 Sweep Generator. Will gladly pay copying charges and postage. Dave Willians WB0ZJP 5501 Holborn, St. Louis, MO. 63121.

FOR SALE- Weatherfax Recorder. Datalog DC-19. All solid state integrated circuits. Helix Printing system. Copies both 120 & 240 speeds. Looks brand-new. $320.00. Immediate shipment. Contact Bob Eiselt KA8AFG, 517 South Lakeshore, Spirit Lake, Iowa. 51360 (712) 336-1354.

FOR SALE- Wideband Microwave Downconverter Pkg. High quality 28" Spun Aluminum Dish type 2.1-2.7 GHz. continuous tuning, 25 db gain $97.00 PPD. 10-Day return privilege. Inquiry answered by mail only. James Pann, P & L Associates, 5818 Santa Cruz Ave., Richmond, CA. 94804.

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FOR SALE- VENUS SS-2 SSTV Converter, hardly used, trade for HW-8 transceiver with headphone, PS and straight key or ? Jeanette Rucker, 48 Ormond St. Dix Hills, N.Y. 11746.

FOR SALE- FRG-7 Receiver, $150.00. Advanced Receiver Research Pre-Amp 432 VDG, $45.00. Trionix Downconverter 2-2.3 GHz. $15.00. Inline 500 Mhz relay w/"N" connectors $18.00. UHF 432 Mhz exciter, $20.00. LA-45 432 Mhz Amp w/Heatsink, $45.00. Hamtronics 432-434 Converter- 28 out with Cabinet, $37.00. Hamtronics Resonators HRF-432 $20.00, HRA-432, $30.00. W2WHK, Don, 210 Utica St., Tonawanda, N.Y. 14150. 716-692-5451.

FOR SALE- YAESU FT-102 XCVR Mint $500.00. AEA CP-1 with MBATEXT for C-64 $100.00. MIRAGE D-108N $125.00. P.C. Electronics TC-1 Modified with TR Relay and GAASFET Preamp $150.00. BIRD 43 with 10W and 250W UHF slugs $100.00. Call Vic, KD2CX (201) 628-9319 after 6.

HELP- I have a Tempo 2020 that I'm trying to work on RTTY, but the filters are just to broad. Does anyone know how to jump the C/W filter into the LSB Mode, for 2 more narrow bands? Any help would be appreciated. Tempo schematic available. A.E. Hickman 3224 Ash St., Punta Gorda, Fla. 33950.


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